ENVIRONMENTAL ASSESSMENT REPORT ON HALOFUGINONE HYDROBROMIDE FOR USE IN REPLACEMENT CAGE LAYING CHICKENS (UP TO 20 WEEKS OF AGE) AND REPLACEMENT BROILER BREEDERS (UP TO 16 WEEKS OF AGE)

This section of the New Animal Drug Application follows the format as prescribed in 21 CFR 25.31a(a).

1. Date: June 1991

2. Name of applicant:

Sponsor:	Agent:
Roussel-Uclaf	Hoechst-Roussel Agri-Vet Co.
Division Agro-Veterinaire	P. O. Box 2500
163 Avenue Gambetta	Rt. 202-206 North
75020 Paris, France	Somerville, New Jersey 08876

In the United States, Hoechst-Roussel Agri-Vet Company will be the distributor of the product and will control the premix manufacture.

3. Address:

Hoechst-Roussel Agri-Vet Co.
P. O. Box 2500
Rt. 202-206 North
Somerville, New Jersey 08876

4. Description of the proposed action:

Purpose of the action. This new animal drug application is submitted for action by the Food and Drug Administration to permit the use of halofuginone hydrobromide in the feed of replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeders (up to 16 weeks of age) as an aid in the prevention of coccidiosis caused by E. necatrix, E. tenella, E. acervulina, E. brunetti, E. mivati and E. maxima.

Coccidiosis is an endemic disease, and nearly 100 percent of all replacement cage laying chickens and replacement broiler breeders grown in the United States are fed feeds containing a coccodiostat. New coccidiostat drugs are developed to be used when existing coccidiostats become less effective because of the development of resistance, to overcome side effects of existing coccidiostats, or because of one or more economic, physical or biological advantages.

Populations. The intended use of the product is for replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeders (up to 16 weeks of age). Studies have been conducted to demonstrate the safety of use of the product in the diets of chickens. The product is not intended for use in species other than poultry. The new animal drug does not have antibiotic properties, EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-6.

The replacement cage laying chickens (egg production) industry is concentrated in three primary areas of the United States: the southern states (Georgia, Florida, Alabama, Mississippi, North Carolina, South Carolina, Arkansas and Texas) with 34% of the egg production, the midwest states (Iowa, Indiana, Ohio, Pennsylvania, Michigan, Minnesota) with 30% of the egg production. California also has 11% of the egg production industry. Seventy-five percent of the replacement cage laying chicken industry, and, therefore, use of coccidiostat drugs is within 14 states.

The replacement broiler breeder industry is concentrated in two primary areas of the United States: the southern states (Georgia, Florida, Tennessee, Alabama, Mississippi, North Carolina, South Carolina, Arkansas, Louisiana, Oklahoma and Texas) with 64% of the broiler breeder industry, the Atlantic coast states (Maine, Pennsylvania, Delaware, Maryland, Virginia, West Virginia and North Carolina) with 16% of the broiler breeder industry. California also has 4% of the broiler breeder industry. Eighty-four percent of the

replacement broiler breeders industry, and, therefore, use of coccidiostat drugs is within 19 states.

The use of the premix Stenorol^{R}, in feeds will be limited to feed manufacturers who obtain approved medicated feed applications (FD 1900) for receipt and use of the new drug in feeds which they manufacture for replacement cage laying chickens and replacement broiler breeders.

The use of the new animal drug will be limited to use in feeds for replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeders (up to 16 weeks of age) under the approval of this new drug application. The feeds will not contain any other drug substance. Feeds containing halofuginone hydrobromide may be fed continuously to replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeders (up to 16 weeks of age).

The coccidiostat will be used as a partial replacement for existing agents intended for the same purpose. The approval of this application is projected to result in partial exposure of 2.5 million replacement cage laying chickens and 53 million replacement broiler breeders to Stenorol^{R}. It is the industry practice to incorporate a coccidiostatic agent in feeds fed to replacement cage laying chickens and replacement broiler breeders. Stenorol^{R} will provide an alternative means of control of coccidiosis.

Stenorol^{R} has been approved for use in broiler chickens since 1985 resulting in the potential exposure of Stenorol^{R} to over 5.8 billion broiler chickens annually in the United States. The potential increase in exposure to the small populations of replacement cage laying chickens and replacement broiler breeders is insignificant in light of the many years of safe commercial use of this compound in the United States and many foreign countries.

5. Identification of chemical substances that are the subject of the proposed action:

CHEMICAL/PHYSICAL PROPERTIES

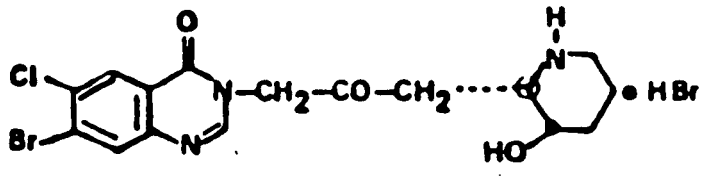
The new drug is known as Stenorol^{R} (halofuginone hydrobromide) Coccidiostat - Type A Medicated Article.
The name of the active ingredient is:

(±)-trans-7-bromo-6-chloro-3-((3-(3-hydroxy-2-piperidyl) acetonyl))-4(3-H)-quinazolinone hydrobromide

Generic Name: Halofuginone hydrobromide (accepted by the United States Adopted Name Council, March 11, 1981).

Chemical Abstract Service Registry No. 64924-67-0.

The structural formula is:



Molecular Weight: 495.6

Molecular Formula: $C_{16}H_{18}O_3N_3Clbr_2$

Solubility: Approximately 0.3% in water

Vapor Pressure: approximately 4 x 10^{-10} mm Hg at 100^{o} C

Melting Point: 294^{o} C, melts with decomposition

Ultraviolet Spectrum:

The UV spectrum characterizes the compound exhibiting 5 maxima. The maxima are at 243, 275, 300, 313 and 326 nm, with the respective $E^{1\%}_{1\ cm}$ of about 900, 170, 45, 60 and 55, respectively.

Mode of Administration: Oral (mixed into complete chicken feeds)

Halofuginone hydrobromide belongs to an entirely new chemical type of anticoccidial agent. The active substance was originally derived by modification of a substance isolated from the Asiatic plant, Dichroa febrifuga.

6. Introduction of substances into the environment:

The active ingredient will be prepared in France then coated in Denmark. The coated active ingredient will be incorporated into a premix at the concentration of 0.6% in the United States. The premix is intended to be used for the manufacture of finished feeds for replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeders (up to 16 weeks of age). The concentration of halofuginone hydrobromide in the finished feed (complete diet) will be 3 parts per million (ppm). The trade name of the premix is Stenorol^{R}.

The active agent, halofuginone hydrobromide, will be manufactured in the Roussel Uclaf factory, Neuville-sur-Saone, France. The active ingredient then will be coated by DanoChemo A/S, in Ballerup, Denmark. The premix containing coated halofuginone hydrobromide will be manufactured by Merck & Co., Inc., in St. Louis, Missouri. The premix then will be shipped to holders of approved medicated feed applications, for incorporation into replacement cage laying chickens and replacement broiler breeders feed. These manufacturers are located in the primary egg production and broiler growing areas of the

United States. The feeds will be fed to replacement cage laying chickens, primarily in southern and midwest states and California. The feeds will be fed to replacement broiler breeders, primarily in southern and Atlantic coast states. Therefore, the environments affected by the proposed action are:

1. The environment adjacent to the Neuville-sur Saone manufacturing plant.

2. The environment adjacent to the Ballerup manufacturing plant.

3. The environment adjacent to the premix manufacturing plant.

4. The environment adjacent to the feed mills using the drug.

5. The ultimate disposition of the drug would be confined to poultry waste. This may be distributed to soil.

Solid and liquid wastes. The active ingredient is to be manufactured overseas in compliance with the laws and regulations of the country of manufacture, France (Attachment I). Liquid wastes are recovered by distillation, incinerated, or transferred to a biological treatment station. The plants manufacturing the active ingredient, halofuginone hydrobromide, operate under the surveillance of a French Government Agency (Inspection des Installations Classes) which is charged with enforcing the regulations enacted in the field of environmental protection.

In the manufacture of the coated active ingredient, there is no significant solid or liquid waste produced. The premix manufacturing facilities adhere to the local, state and national environmental laws and regulations (Attachment II).

In the manufacture of the premix, there is no significant solid or liquid waste produced. The premix manufacturing facilities adhere to the local, state and national environmental laws and regulations (Attachment III).

Solid or liquid waste from the broiler feeding operations is normally applied to fields as manure mixed with the bedding (litter).

Toxic substances. There is no pollution of the environment in the manufacture, processing, and use of the new animal drug with heavymetal, pesticides, or radiation.

7. Fate of emitted substances in the environment:

Studies reporting the metabolism and migration of the waste products of the drug following feeding to chickens have been conducted and are included as part of the Environmental Assessment (EA) for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-1, 7 & 8. These reports include the characteristics of radiolabeled halofuginone with respect to soil migration when the radioactive material was applied directly to soil and when excreta collected from chickens dosed with radioactive halofuginone was added to soil. The results of this study indicate that halofuginone hydrobromide elutes very slowly through soil, and there is no significant leaching below the first 5 cm section of the test soil types, a loamy fine sand and a clay loam. When excreta collected from chickens dosed with radiolabeled halofuginone hydrobromide was added to columns and diluted, more than 80% of the radioactivity remained in the top 5 cm, and less than 5% diluted through the 30 cm columns. The elution characteristics were not altered following incubation for 32 days of the excreta from chickens administered radiolabeled compound.

Halofuginone appears to be strongly bound to either loamy fine sand or clay loam soils and therefore does not leach much through soil. $\geq$ 99.5% of the radioactivity stayed in the top 5 cm of the 30 x 4 cm columns after one bed-volume of water (400 ml) was passed through each soil column. Run off of waste to lakes or rivers from application of manure, litter or bedding of medicated birds is not expected to be quantitatively significant. A soil adsorption/desorption study was conducted with ^{14}C-halofuginone hydrobromide (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-21). Aqueous solutions of ^{14}C-halofuginone hydrobromide were equilibrated with three soil types, adsorption coefficients and adsorption constants were determined by liquid scintillation analysis. The results are summarized below.

Soil Type	Stage of Study	Kd	Koc	n
Silt Loam	Ad	30.3	1515	2.37
	De	389	19450	1.09
Silty Clay Loam	Ad	51.8	7400	1.91
	De	1329	189857	0.906
Silt Loam Loam	Ad	22.0	2651	2.49
	De	199	23976	1.02

The mobility of a chemical through soil can be directly related to its adsorption properties. This relationship is applicable for neutral organic compounds. K_{OC} values can be related to mobility of the test material in the soil. The study shows that, in the three soils tested (at pH's between 6.0 and 7.0), halofuginone mobility in soil is low to very low. Once sorbed to soil, between 1% and 6% could be desorbed, depending on soil type. Based on the ionic nature of halofuginone, higher mobility may be expected as soil pH decreases. Increased organic matter and clay content of soil would be expected to increase the amount of halofuginone sorbed to soils.

Biodegradation studies in soil were conducted in the laboratory and under field conditions. In the laboratory study, the extractable halofuginone residues decreased in time and the half-life was about 15-20 days in these two soils. Degradation products for lower molecular weight compounds, and the portion of these products increased with time. There was slow but continuous evolution of radioactive CO_2 (about 5% in 16 weeks), this indicates a slow but virtually complete degradation of the halofuginone molecules. In the field studies, the initial halofuginone degradation was slower than in the laboratory soils, probably weather related. The field soil half-life was about 43 days. There was no significant leaching of halofuginone and its metabolites through soil (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-8). These results indicate that halofuginone and its metabolites in chicken excreta will not be mobilized from the soil environment into the aquatic environment.

Excreta from chickens dosed with radiolabeled halofuginone were incubated with river water stored in the dark at 25°C for 32 weeks. The water soluble residues from chicken excreta were about 35% halofuginone and 30% a major chicken metabolite. The level of water soluble halofuginone (and its major chicken metabolite) declined over a 32 week period. Numerous degradation products were formed and they were generally less polar than halofuginone (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-7).

The concentration of halofuginone and metabolites in poultry feces is approximately 3 ppm. Replacement cage laying chickens (up to 20 weeks of age) and replacement broiler breeder (up to 16 weeks of age) are typically raised on litter, thus further diluting the concentration of drug and metabolites. A conservative estimate is dilution by 33% so as to give a concentration in litter of 2 ppm. Concentration of the drug and metabolites in soil following the use of litter as fertilizer can be estimated by the following formula:

$$\text{Drug conc. in soil (mg/kg)} = \text{Drug conc. in litter (mg/kg)} \times \frac{\text{Kg litter applied to soil}}{\text{acre of soil}} \times \frac{\text{acre of soil}}{\text{kgs in top 6" of soil}}$$

For Halofuginone hydrobromide

$$\text{Drug conc. in soil} = 2 \text{ mg/kg (2 ppm)} \times \frac{10{,}000 \text{ kg litter}}{1 \text{ acre}} \times \frac{\text{acre}}{9.09 \times 10^5 \text{ kg}} = .022 \text{ mg/kg}$$

The estimate of 0.022 mg/kg (22 ppb) addition of halofuginone and metabolites to the soil, with the evidence as stated above that there is no significant leaching (the substance binds to the soil), and the further evidence of biodegradation of the drug and its metabolites, allow for the following conclusions:

- Levels of halofuginone hydrobromide and its metabolites in soil following fertilizing with fresh litter from birds fed the drug are estimated to be 22 ppb.

- Soil migration potential for the drug and its metabolites is very small.

- The drug is biodegradable in soil and in water.

- Runoff of the drug into bodies of water is not likely because of the low concentration in soil, and the binding properties of the drug and metabolites to soil.

Halofuginone residues in plants were not over 35 ppb even when chicken excreta (from animals given approximately seven times the expected dose level) was incorporated into soil at the rate of "80 tons/ha" (32.4 tons/acre).

Halofuginone uptake by plants was very similar whether the drug was directly incorporated into soil or came from chicken excreta incorporated into soil. The only plant part that showed a statistically significant uptake of radioactivity was carrot foliate at 7 ppb halofuginone equivalents. See also Appendices Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-2 and D-3, and the discussion of food contamination in Section 11.

Manure from birds fed diets containing halofuginone hydrobromide may be used as fertilizer for plants. Studies have been conducted to demonstrate the effect of halofuginone hydrobromide, or the waste from animals treated with halofuginone hydrobromide on plants. There have been no serious symptoms of phytotoxicity when the drug is properly used (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-17 and Appendix D-19). Also, see the discussion of the phytotoxicity results in Section 8. - Toxicological/ Pharmacological Properties.

Test work conducted to determine the effects of halofuginone in other species of farm animals. In the case of the horse, ponies were fed rations containing halofuginone at the level of 3 ppm for four weeks. There were some slight changes in blood composition, but the ponies remained clinically normal at all times. A report of this study is included as EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-4. Swine were dosed orally with halofuginone at graded dosage levels. Pigs dosed at 5 mg/kg survived the treatment. The acute toxicity was such that a 30 kg pig would have to ingest approximately 100 kg of poultry diet containing 3 ppm halofuginone to cause mortality. A report of this study is included as EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-5.

Halofuginone hydrobromide is a potent antiprotozoal agent against coccidia and has action against other protozoal organisms (EA for Halofuginone

Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-18). Classic in vitro screening tests on protozoa were not conducted; however, several studies in animals have been done to determine if halofuginone is effective against some of the protozoa that are pathogenic in animals. Ten study reports were summarized. Halofuginone was effective against Theileria, Sarcocystic, Leucocytozoonosis and some species of Babesia at doses of 1-2 mg halofuginone/kg of body weight. Dose levels higher than 2-4 mg/kg of body weight were generally toxic to the host animals. This work demonstrates that halofuginone is effective against protozoa other than chicken coccidia. It has low or no activity against various gram negative and gram positive bacteria, EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-6. The application of feces from chickens treated with halofuginone did not have any significant effect upon the nitrification process in soil (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-14). This study measured the effect of excreta from chickens fed halofuginone at 3 ppm upon soil bacteria nitrogen transformation. NH_4+, NO_2- and NO_3- were followed over 28 days in two soils (a light loam and a heavy clay) with or without excreta (3.5% incorporation rate) kept at R.T. in the dark. In both soils, halofuginone residues appeared to have no significant effect upon the production of NH_4+ and its subsequent conversion to NO_2- and NO_3- (measured as micrograms N/g soil).

8. Environmental effects of released substances:

The acute oral toxicity of halofuginone hydrobromide in mice was determined in a study conducted by the drug sponsor. 120 mice were used in this study and were given doses of 2.5, 3.1, 4.9, 6.1 and 7.6 mg halofuginone per kg of body weight in a single dose by oral intubation. During the observation period of 8 days, a record was kept of all mortalities and signs of toxicity. Deaths occurred in mice treated at 3.1 mg/kg body weight and above. Autopsy of the dead animals showed an affected digestion with proliferation of mucous in the stomach and the presence of a yellow liquid

in the intestine. Enlargement and hyperplasia of the mesenteric ganglia were also noticed. After 7 days, the surviving mice looked and behaved normally. From this study, the acute median lethal oral dose (LD_{50}) of halofuginone and its 95% confidence limits to male and female mice were calculated to be 4.9 mg/kg (4.1 - 5.8 mg/kg) and 4.4 mg/kg (3.7 - 5.2 mg/kg) respectively.

The acute oral toxicity of halofuginone hydrobromide to rats was determined by the drug sponsor. 100 rats were used in this study and were given doses of 17.0, 22.1, 28.7, 37.3 and 48.5 mg halofuginone/kg of body weight in a single dose by oral intubation. During the 8 day observation period, mortalities occurred in all treatment levels. After 5 days, wasting in animals of the high dose level was noted. Autopsy of dead animals showed the stomach to be affected by proliferation of mucous and the presence of a yellow liquid in the intestine. Hyperplasia of the mesenteric ganglia was also noted. From this study, the acute median lethal oral dose (LD_{50}) of halofuginone and its 95% confidence limits to male and female rats were calculated to be 31.0 mg/kg (25.0 - 38.4 mg/kg) and 28.0 mg/kg (23.3 - 33.6 mg/kg) respectively.

The acute oral toxicity of halofuginone hydrobromide in 5 week old chickens was determined in a study conducted by Huntingdon Research Centre, Huntingdon, England. 35 chickens were used in this study and they were given doses of 0.0, 5.0, 10.0, 15.0, 17.5, 20.0 and 22.5 mg halofuginone/kg of body weight in a single dose by oral intubation. The chickens were observed for a 14 day period with mortalities occurring in the group given 17.5 mg halofuginone and above. All mortalities were recorded between days 9 and 14 after dosing. At doses of 17.5 mg/kg and above the chickens became listless and lethargic and food consumption dropped as the study progressed. All these birds showed signs of emaciation and their crops became very distended. All birds were in poor condition and there was a complete absence of adipose tissue in birds treated at the higher levels. The crops were gas flled with a complete absence of solid material. All other organs appeared normal. From this study, the acute median lethal oral dose (LD_{50}) of halofuginone and its 95% confidence limits to

chickens were calculated to be 17.6 mg halofuginone/kg of body weight (15.7 - 19.7 mg/kg).The acute oral toxicity of Stenorol^{R} premix to rats was determined in a study conducted by Huntingdon Research Centre, Huntingdon, England. 62 rats were used in this study and were given doses of 0, 1, 1.6, 2.5 and 4 grams Stenrol premix per kg of body weight administered in a single dose by oral intubation. During the observation period of 14 days, a record was kept of all mortalities and signs of toxicity. Death occurred in rats treated at 1.6 grams/kg and above within 21 hours to 7 days after dosing. Autopsy revealed congestion and hemorrhage of the lungs, palor of the liver and kidney and discoloration of the spleen. Recovery of the survivors as judged by external appearance and behavior was apparently complete within 5 days of dosing. From this study, the acute median lethal oral dose (LD_{50}) and its 95% confidence limits to rats of Stenorol premix were calculated to be: 1.5 (1.3 to 1.8) grams Stenorol premix per kg body weight.

Huntingdon Research Centre, Huntingdon, England, conducted a 24 month oral toxicity study with halofuginone hydrobromide to determine the tumorgenicity to mice in long term dietary administration. The study was conducted in two phases, a reproductive phase dealing with the reproductive performance of an F0 generation covering a period from inception to weaning of the litters of the F0 generation. The main phase of the study dealt with the F1 generation which lasted from weaning until the last group was sacrificed after 100 weeks of treatment. During the reproductive phase, halofuginone was fed at 0, 0.25, 0.5 or 1 ppm. During the reproductive phase, there was no apparent reaction to treatment. The performance of treated mice was similar to that of the controls. During the main phase of the study, halofuginone was fed at levels of 0, 0.03, 0.07, 0.14 mg halofuginone/kg of body weight per day. The high level dosage (0.14 mg/kg/day) was fed during weeks 1-14. The halofuginone level for this high dosage group was increased to 0.24 mg halofuginone/kg body weight/day for the balance of the study after week 14. During the reproductive phase of the study, 80 males and 80 female mice were assigned to each dietary treatment. During the main phase of the study, 52 males and 52 female mice were assigned to each dietary treatment. At treatment levels of 0.3 and 0.7

mg/kg/day, there was no apparent toxic effect of halofuginone administration during the course of the main phase of the study when compared to the control group. During the 14 weeks that the high dosage group received 0.14 mg/kg/day, there was no apparent reaction to treatment when compared to the control group. Increasing the high dosage group to 0.24 mg/kg/day from 15 weeks to termination of the study lowered body weight gain during this period, impaired food utilization efficiency and increased feed intake by females. No effect on spontaneous tumor incidence was seen in any of the treatments. Therefore, under the conditions of this study, halofuginone is not a carcinogen. The toxicological no-effect level was established as 0.07 mg halofuginone/kg body weight/day.

A 28 month oral toxicity study in rats was conducted by Huntingdon Research Centre, Huntingdon, England to determine the potential tumorgenicity and toxicity to rats in long term dietary administration. A total of 520 rats were assigned to 4 treatments with 65 males and 65 females being alloted to each treatment group. The dose levels of halofuginone were 0, 2.5, 5.0 and 10.0 ppm given in the feed. The dose level of 2.5 ppm halofuginone produced no detectable changes in clinical signs, growth hematology parameters, urine analysis, nor in gross pathology or histopathology. At the 5 ppm halofuginone level, no detectable changes were noted in any of the parameters except for alopecia in a few females from week 23 and lower values in erythrocytic parameters in females at week 78. At the high level (10 ppm) of halofuginone administration, several observations were made related to the experimental treatment. Reactions to the high level treatment were lower feed intake and lower body weight gain during the initial phase of the test period, alopecia in a few females, lower erythrocytic parameters in females, higher SGPT values in some animals, and microscopic examination revealed increased incidence of hepatocyte vacuolation and fat deposition in males and females with associated glycogen depletion in females only. The dosage of drug intake by rats at the low level (2.5 ppm) was approximately equivalent to 0.1 mg halofuginone/kg body weight and approximately the equivalent to 0.2 mg halofuginone/kg body weight at the intermediate level (5 ppm). The no-effect level established for this study is approximately 5 ppm halofuginone in the feed (0.2 mg halofuginone/kg body weight).

A halofuginone toxicity study in beagle dogs was conducted by Huntingdon Research Centre, Huntingdon, England in which 35 beagle dogs were fed halofuginone for 26 weeks at levels of 0.0, 1.25, 2.5 and 5.0 ppm halofuginone in the diet. The results of this study indicated no marked adverse effects on body weight, food consumption, clinical signs, water consumption, ophthalmic examinations, testicular function, blood value and no abnormalities on postmortem examination or organ weights. The high level of 5 ppm may have resulted in a slight adverse effect on food intake by several animals in that treatment. The mean halofuginone intakes in mg halofuginone/kg body weight/day were approximately 0.08 for the 2.5 ppm level and 0.16 for the 5 ppm level. The toxicological no-effect level in dogs was determined to be 0.08 mg halofuginone/kg body weight/day.

A study was conducted in beagle dogs to determine the potential antifertility effects of halofuginone hydrobromide by Hazelton Laboratories, Vienna, VA. In this study, three groups of 10 male animals each received either 0, 2.5 or 5 ppm halofuginone hydrobromide in the diet. The dogs were fed the diets from the time the dogs were approximately 3 months old through reproductive maturity (breeding age). There were no statistically significant effects upon fertility or sperm count data. In some cases at the high level (5 ppm) there was food refusal and emaciation of the dogs. Because there was a numerically non-significant lowered fertility index for the treated animals compared to the controls, an a numerically non-significant decrease in live - born pups sired by the treated animals when compared with the control animals, a follow-up study was conducted with additional data being collected from 2 control dogs and 3 dogs each from 2.5 and 5 ppm levels. The additional data was collected after the dogs had been receiving a basal diet only (no halofuginone hydrobromide) for a minimum of 27 weeks. The data included semen analysis, testicular measurements and the results of matings to proven females and gross necropsy findings. No biologically significant necropsy findings were noted. Evaluation of the mating results indicated that all of the males involved were able to sire viable litters. Increased

sperm counts were noted for 1 dog each from the control group and the 2.5 ppm treated group. Decreased motility and sperm counts were noted for one 2.5 ppm dog. A trend toward increasing sizes was noted for the testes of all the dogs except one 5 ppm dog which had never produced viable sperm. These results indicate that any possible antifertility effects of feeding halofuginone hydrobromide to male dogs are reversible after halofuginone feeding has been discontinued.

A study to determine the teratogenic effect of halofuginone on rats was conducted by the Institute for Pharmacology and Toxicology, Hannover, West Germany. 100 rats were used in this study in which halofuginone was given in two different tests. In the first test, halofuginone was given in a single dosage at 9.33 mg halofuginone/kg of body weight which was administered by gavage on critical days during pregnancy. The second halofuginone test was a 10 day administration of 6 ppm halofuginone in the feed corresponding to twice the use level of halofuginone in broilers. The fetuses were recovered by section for the investigation of possible damage, x-ray procedures, alinzarin staining of skeletons and the control of organ positions. The halofuginone treated rat fetuses were compared to an untreated control, to a control group whose animals received only a single administration of water and to a group given cyclophosphamide, a known teratogenic substance. A careful study of the individual findings showed no specific teratogenic effect in any of the rats treated with halofuginone. Thus, this study resulted in the determination that halofuginone is not teratogenic. Thus, harmful effects to consumers from possible residues in poultry meat is not to be expected because of the 4-day withdrawal period in broilers and because halofuginone was given at much higher than the 3 ppm dosage level in broilers.

A study was conducted by Huntingdon Research Centre, Huntingdon, England, to determine the effect of halofuginone on reproductive function of the mouse through 3 generations. Halofuginone was given continuously in the feed at levels of 0, 0.25, 0.5 and 1.0 ppm to 4 treatment groups consisting of 15 males and 30 females in each treatment group. This treatment regimenwas followed through the 3 generation study. Throughout the 3

generations, the parent animals showed no consistent dosage related effects with respect to reaction to halofuginone, mortalities, food consumption, body weight change, mating performance, pregnancy rats, duration of gestation or findings at terminal autopsy. Additionally, the litter data collected over the 3 generations which gave values for the incidence of total litter loss, litter size, cumulative pup mortality, incidences of abnormalities and microscopic changes at terminal autopsy were not adversely affected by any treatment at any dosage. Terminal examination of the F3 generation showed no significant differences from control values in respect to organ weights adjusted for body weight or in respect to the incidence of macroscopic or microscopic changes recorded at the pathological examination.

Summary.

The compound halofuginone hydrobromide has an acute oral toxicity of approximately 5 mg/kg in the mouse. This is equivalent to an oral toxicity of greater than 800 mg/kg body weight for the formulated product. Acute oral toxicity of the premix has been determined to be 1.5 (1.3-1.8) grams per kg in the rat.

The toxicity of the compound has been assessed in lifetime feeding studies, in reproduction studies, and in a teratogenicity study. There has been no indication of insidious toxicity of the compounds. The toxicological no-effect level in the most sensitive mammalian species (mouse) is 0.07 mg/kg/day.

The following studies were conducted to determine the phytotoxicity of halofuginone:

Four species of plants (cucumbers, tobacco, tomato and lettuce) were tested in a preliminary toxicity test with the equivalent of halofuginone doses of 480, 240, 120 and 60 grams per hectare. These doses are approximately 0.2, 0.1, 0.05, and 0.03 ppm. While no quantitative measures were taken, observers visually determined that all treatments were similar to controls throughout the 42-day test period. The investigators further studied the

effects of manure and bedding from chickens fed 3 and 6 ppm halofuginone on tobacco. Application rates were from 10 to 80 tons manure per hectare. Some leaf curling, other sublethal effects, and mortalities were observed during the 56-day test period in both treatments and controls, which was ascribed to effects of the chicken manure and bedding, rather than to effects associated with halofuginone. (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-17).

A seed germination and a seedling growth study was conducted using 0, 24, 96, 683, 989 and 1430 ppm halofuginone hydrobromide and corn, cucumbers, wheat and soybeans as test organisms (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-19). For the germination trial, 6 replicates of 50 seeds each were germinated for each crop type and the number of seeds germinated by days 2, 3, 5, 10 and 12 were recorded. In the seedling trials, 6 replicates of 25 seedlings were grown and the average shoot length (mm), average root dry weights (mg), and average shoot dry weights (mg) at days 5, 7, 10, 14, 21 were recorded. Only data from the final time period (day 12 for germination and day 21 for seedlings) were analyzed.

Seed Germination Trials.

Each crop type was analyzed separately. Percent germination was computed and, because most values were greater than 70%, an arcsine transformation was used on the data. An analysis of variance was computed with effects for blocks, treatment and error.

All main effects for treatment were significant at $P < .02$ for all 4 crops and all had significant linear or quadratic trends. It was in the 24 ppm dose group that most of the departures from the trend occur. The variability from dose to dose is not consistent, but there is no general pattern of inconsistency. There seems to be no logical basis for the sharp upward jump from the 989 to 1430 dose for cucumber and corn.

Seedling Growth Trials.

Each crop type was analyzed separately. Shoot length at 21 days and dry root and shoot weights at 21 days were all analyzed by analysis of variance with effects for blocks, treatment an error. All main effects for treatment were significant at $P < .03$ except shoot dry weight for corn ($P = .56$) and $P = .07$). However, no consistent, understandable dose response relationship emerged either across crop for any one variable, such as average shoot length, or among variables within a crop. Variability again was erratic.

Summary.

The dose titration data collected for seed germination and seedling growth for corn, cucumbers, soybeans and what has highly erratic variability and few consistent, logical relationships between response and dose can be established. There is evidence of a downward linear or quadratic trend for germination for all crops but its credibility is hampered by sharp, upward jumps in germination at the highest dose for corn and cucumbers. There are generally overall significant differences among treatment groups but these differences are difficult to interpret.

Given that the doses of halofuginone applied were far above the expected 0.022 ppm in agricultural soil and the 3 ppm observed in chicken excreta, it is unlikely that adverse effects on the test species will be observed due to the use of manure from halofuginone-treated chickens as soil amendments.

The LC_{50} of halofuginone hydrobromide to earthworms (Eisenia foetida) was determined. The theoretical LC_{50} for the test species exposed to halofuginone hydrobromide for 14 days is 240 ppm with 95 percent confidence intervals of 189-304 ppm. The theoretical LC_{50} for the test species exposed to halofuginone hydrobromide for 28 days is 190 ppm with 95 percent confidence intervals of 148-224 ppm. Studies have been conducted in three laboratories to determine the aquatic organism toxicity of halofuginone.

A study of acute toxicity in carp (Cyprinus carpio) in a 72 hour test resulted in determination of median lethal tolerance of 0.3 - 0.7 ppm (mg/liter), EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-9. This was a static test in 20 liter tanks (at 21 $\pm$ 2°C) testing a halofuginone concentration series of 0.01, 0.07, 0.1, 0.3, 0.7, 1.0, 3.0, 7.0 and 10 ppm (mg/liter). The 48-hour TL_{50} was 0.7 ppm with 95% confidence limits of 0.3 to 1.0 ppm. At 72 hours all doses $\geq$ 0.7 ppm caused 100% mortality and all doses $\leq$ 0.3 ppm showed 0% mortality. Therefore, a presumed 72 hour TLm would be between 0.3 and 0.7 ppm.

Halofuginone was used in a comparison of several veterinary drugs in studies conducted at the National Institute of Public Health, Laboratory for Toxicology, the Netherlands. In this study, halofuginone was shown to have a 48 hr. LC_{50} in the rainbow trout (Salmo gairdneri) of 2.9 mg/l with 95% confidence limits of 2.1 to 3.8 mg/l, in the guppy (Lebistes reticulatus) the 48 hr. LC_{50} was 1.6 mg/l (1.3-1.9 mg/l) and the 48 hr. LC_{50} for Daphnia magna was 0.018 mg/lg (0.015 - 0.021 mg/l). The study also included results on the acute toxicity testing using green algae, Chlorella pyrendoisoda, in which the growth inhibition EC_{50} was found to be 46 mg/l, EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-10. Halofuginone was listed as being very toxic in these studies.

The acute toxicity in the Daphnia magna was confirmed in a recent report of studies conducted at Analytical Biochemistry Laboratories, Inc., (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-11), with the 48 hr. LC_{50} test (at 20°c) using halofuginone concentrations of 0.01, 0.018, 0.032, 0.056 and 0.1 mg/l. D.O. and pH measures were within adequate ranges. The 48-hr. $LC_{50}$was 0.02 mg/l and the 95% confidence interval was 0.017-0.023 mg/l. Studies also have been reported for the acute toxicity in the bluegill sunfish giving a 96 hr LC_{50} of 0.12 mg/l (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-12). The bluegill (Lepomis macrochirus) test was a static

96-hour LC_{50} test (at 22°C) using halofuginone concentrations of 0.10, 0.18, 0.32, 0.56 and 1 mg/l. The D.O. and pH measures were within adequate ranges. The 96-hour LC_{50} was 0.12 mg/l and the 95% confidence interval was 0-0.18 mg/l. Antimycin A was also used as a reference toxicant and the bluegill results were within the 95% confidence intervals published in the scientific literature. In the rainbow trout the 96 hour LC_{50} was reported as being 1.8 mg/l, EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-13. The rainbow trout (Salmo gairdneri) test was a static LC_{50} test (at 12°C) using halofuginone concentrations of 0.32, 0.56, 1.0, 1.8 and 3.2 mg/l. The D.O. and pH measures were within adequate ranges. The 96-hour LC_{50} was 1.8 mg/l and the 95% confidence interval was 1.0-3.2 mg/l. Antimycin A was also used as a reference toxicant and the rainbow trout results were within the 95% confidence intervals published in the scientific literature.

Two studies (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-20) were conducted to determine the LC_{50} of halofuginone to earthworms (Eisenia foetida) in artifical soil. In the first study, mortality was too high in the controls and too low in the treated groups to determine the LC_{50}. In the second 28 day study, the determinative test was conducted by adding halofuginone hydrobromide to the artifical soil at concentrations of 0, 1.0, 10.0, 25.0, 50.0, 100.0, 200.0 and 400.0 ppm. This study was conducted using Eisenia foetida (the common dung worm) and the theoretical LC_{50} for the test species exposed to halofuginone hydrobromide for 14 days is 240 ppm with 95 percent confidence intervals of 189-304 ppm. The theoretical LC_{50} for the test species exposed to halofuginone hydrobromide for 28 days is 190 ppm with 95% confidence intervals of 148-224 ppm. Individual worms that survived halofuginone exposures greater than or equal to the 28-day LC_{50}, showed sublethal effects in the form of weight loss. The LC_{50} was calculated using the Litchfield and Wilcoxon method. The 28 day LC_{50} for halofuginone is 8,636 times the highest estimated concentration of halofuginone that will be found in the soil (0.022 ppm) following the use of litter as fertilizer. No differences in mortality over the controls were observed until the soil concentration of halofuginone was over 50 ppm

(2,273 times the highest estimated concentration that will actually be found in the soil).

ANTICOCCIDIAL PROPERTIES

The anticoccidial efficacy of halofuginone hydrobromide has been determined in battery studies and floor pen experiments. These have included studies with negative controls and comparisons with other coccidiostats. Studies included challenge with isolates of all common species of coccidia. Halofuginone hydrobromide was determined to be effective when included in the diet of chickens at a concentration of 3 ppm.

Included in the studies are coccidia isolated from chickens having symptoms of infections from coccidia resistant to currently used coccidiostats. Halofuginone hydrobromide has been effective against these organisms.

The new animal drug has been used since 1985 in the major broiler areas of the United States. Aprroximately one billion broilers have been treated in the United States since 1985. It also has been used under practical conditions in countries outside of the United States in the feed of approximately six billion broiler chickens.

METABOLISM BY TARGET ANIMALS

In studies of the excretion and tissue distribution of radiolabeled halofuginone with the labeling both in the quinazolinone and the piperidine moiety, it has been shown that the highest concentration of radioactivity occurred in the livers and kidneys of treated birds. Tissue depletion studies have been conducted, and compared metabolic fate studies were conducted with the most sensitive experimental animal species used in the life-time feeding studies. There has been no evidence of build up of residues in the edible tissues of chickens treated with the drug, and there are no residues of toxicological significance in the tissues of chickens following the feeding of broilers diets containing the new animal drug, followed by a four day withdrawal from the medicated feed.

Excretion of radioactivity after oral doses of ^{14}C-halofuginone to chickens is approximately 50% of the dose during the five days after administration. The liver is the organ with highest concentration of residues of the drug or metabolites of the drug. The depletion of residues from the liver is rapid with a half life of one to two days. Comparison of the total radioactivity and halofuginone in chicken liver and kidneys shows that halofuginone is the major portion (69-90%) of the total residue at all times. Metabolites, therefore, make up approximately 10-31% of the total residues in chicken liver and kidney. Because halofuginone was the highest single major tissue residue component, it was chosen as the marker residue and the liver the target organ.

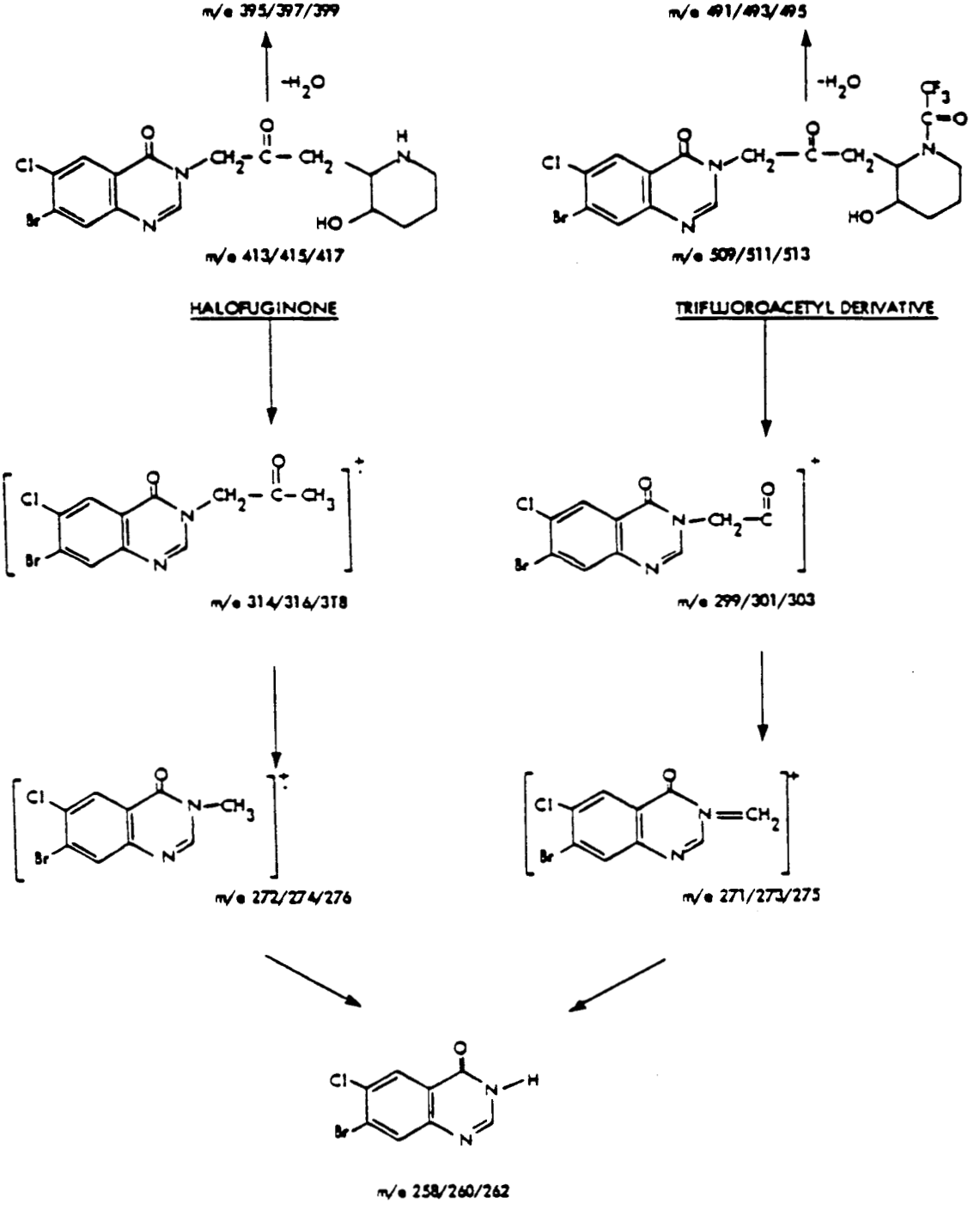
Biliary excretion is the major route of disposition of halofuginone from chickens. A small amount of halofuginone may be disposed of by chickens via enterohepatic circulation. A major component of the bile is a conjugated form of halofuginone resulting from the addition of an unknown endogenous component. The formation of this conjugated form (metabolite) is considered to be a detoxification process which assists in the elimination of halofuginone residues from tissues. The next largest fraction found in the bile was halofuginone.

The isolated major chicken bile metabolite and halofuginone were derivatized with trifluoroacetic anhydride. The results indicated that the metabolite forms a trifluoroacetyl derivative which is thermally unstable and is converted to N-trifloroacetyl-halofuginone during mass spectroscopic examination. The metabolite may be a ring-opened form of halofuginone which under certain conditions may undergo cyclisation to give the parent compound (see attached Figure 1 of the mass spectral fragmentation of halofuginone and its trifluoroacetyl derivative).

Tissue concentrations of (^{14}C-piperidine)-halofuginone were compared to equivalent doses of (^{14}C-quinazolinone)-halofuginone and were found to be similar. These results show that extensive metabolism of halofuginone into components containing only the piperidine or quinazolinone moieties does not occur.

FIGURE 1

Mass spectral fragmentation of halofuginone and its trifluoroacetyl derivative.



Two major radioactive components were found in chicken excreta, one corresponding to halofuginone (64% extract radioactivity) and another (24% extract radioactivity) which was slightly less polar than halofuginone. These were also the major radioactive components in chicken bile.

Based on these studies, we have concluded that:

- Halofuginone is essentially not metabolized into component parts, i.e.; piperidine or quinazolinone moietes.
- 60-65% of the radioactive components found in chicken excreta is halofuginone.
- The half-life of halofuginone residues in chickens is 4-5 days.
- Halofuginone was the highest single tissue residue component and was chosen as the marker residue. Liver was chosen as the target organ.
- Halofuginone is excreted from the body through the bile as a conjugated form of halofuginone. Conjugation is a detoxification process rendering the compound less biologically active.
- Residues of halofuginone do not accumulate in chicken tissue.

Studies were conducted on the metabolism of halofuginone hydrobromide in rats and sheep fed excreta from poultry that had been dosed with the compound. In the rat study, the fate of ^{14}C labeled compound during a 6 day feeding period and a 10 day withdrawal period was observed. The major excretion was by feces with the minor portion being excreted via urine. Accumulation in rat tissues did not occur to any significant degree. Lambs consumed a diet composed of 60% excreta from treated birds for 16 days. Analysis of the tissues of halofuginone was conducted and no edible tissues contained detectable levels immediately after the feeding period, or from 5 to 10 days post-withdrawal. These studies indicate that halofuginone and its metabolites will not accumulate in other species.

The potential for halofuginone to bioaccumulate in organisms in the environment was tested by determining the n-Octanol/water coefficient of halofuginone (EA for Halofuginone Hydrobromide for Broiler Chickens - NADA 130-951, 50 FR 33718, August 21, 1985, Appendix D-16). The partition coefficient is expressed as:

$$K_{ow}{}^{1} = \frac{C^{2}\ (\text{n-octanol})}{C\ (\text{water})}$$

$^{1}K_{ow}$ = Partition coefficient

^{2}C = Halofuginone concentration

The n-Octanol/water partition coefficient for halofuginone was found to be: K_{ow} = 23.4 (log K_{ow} 1.369). The study was conducted in a PH 5.0 buffered solution. This K_{ow} is further supported by an estimation procedure based on a halofuginone solubility of 3000 ppm. The log K_{ow} is estimated to be 2.622 (Chiou, 1982). Both the experimental K_{ow} and the estimated K_{ow} indicate that halofuginone has a low potential to partition into lipid material. The estimated bioconcentration factor using the method reported by Veith, et al (1980) is 0.780. Therefore, its bioconcentration potential is expected to be low.

References

Chiou, C. T., D. W. Schmedding, and M. Manes, 1982. Partitioning of organic compounds in octanol-water systems. Environ. Sci. Technol. 16:4-10.

Veith, G. D., et al, 1980. An evaluation of using partition coefficients and water solubility to estimate bioconcentration factors for organic chemicals in fish, pp. 116-129. In J. C. Eaton, P. R. Parrish, and A. C.Hendricks, Eds. Aquatic Toxicology, ASTM-STP 707. American Society for Testing and Materials, Philadelphia, PA.

9. Use of resources and energy:

Natural resources. The effect of approval of the NADA will be to provide an alternative medication for prevention of coccidiosis in replacement cage laying chickens and replacement broiler breeders. The active drug concentration is 3 ppm in the diets of poultry, which is far less than the amount of any drug substance now employed in the prevention of coccidiosis. No irreversible and irretrievable commitment of resources will be involved if the proposed action should be implemented.

This action will not require any significant use of the environment. There are no expectations or evidence to expect short-term or long-term effects. Therefore, there is expected to be no effect upon the depletion of natural resources due to manufacture of the drug.

Energy. The indirect effect of approval of this NADA will be a saving of energy by prevention of loss of birds due to strains of coccidia which may be resistant to a previously used coccidiostat.

Environmental impact of the manufacturing process.

1. An outline of the manufacture of the product is included in Section 5 of the NADA. The synthesis of the new drug substance is contained within the manufacturing facility.

2. The article will be manufactured in FRANCE then coated in DENMARK. Pre-mix operations will be conducted within the United States, and such operations will be in full compliance with federal, state, and local emission requirements. The pre-mixing operation is expected to be contained and there is no waste products produced.

3. The sponsor of this new animal drug application certifies that any emissions resulting from the manufacture of the article will be in full compliance with the appropriate regulations of the country of manufacture. Pre-mix operations will be in full compliance with federal, state, and local emission requirements (Attachments I, II and III).

10. Mitigation measures:

In light of the data presented above, no mitigation measures are necessary except a warning statement on the premix label describing halofuginone as a potential skin irritant to humans and halofuginone's potential toxicity to fish and aquaculture.

There are no known significant adverse environmental effects related to the manufacture and use of the new drug. The drug has been produced for use in 44 countries, and over 20,000 tons of the drug have been produced without reported adverse environmental effect.

11. Alternatives to the proposed action:

The only alternative to approval of the New Animal Drug Application, is non-approval. This would mean that the poultry industry would not have the choice of use of this drug. The drug may be especially useful in those cases where resistance of coccidia to other drugs is of significance. Development of resistance to existing coccidiostats is probable, and it is desirable to have alternative coccidiostats available.

This drug will have the effect of providing an alternative means of control of coccidiosis in poultry. It is well recognized that coccidiosis is an endemic disease and the only suitable methods of control is through drugs. Without use of coccidiostats there is no practical or efficient method of producing broiler chicken meat for human consumption. Broiler chickens are one of the most efficient producers of high value animal protein.

No objections have been raised by an agency, organization, or individual. The drug has a history of safe manufacture and use in France. It has been authorized by that government for manufacture, and has been authorized for use in European Economic Community countries since 1977. Halofuginone hydrobromide has been used without incident for broiler chickens in United States since 1985.

It is the sponsor's position that this action will not require the preparation of an environmental impact statement. It is the sponsor's belief that there is no significant risk associated with the proposed action. We have demonstrated in the application the usefulness of halofuginone as an aid in the prevention of coccidiosis caused by E. necatrix, E. tenella, E. acervulina, E. brunetti, E. mivati and E. maxima. The significant benefits of approval of this NADA far outweigh the potential risks. This new animal drug application contains analytical methods for residues, including studies to determine the actual levels of residues in the edible products from birds fed feeds containing halofuginone hydrobromide. It is concluded that the residues of halofuginone are not of toxicological significance when used as labeled. The analytical methods are adequately sensitive to measure residues of less than 30 parts per billion.

12. List of preparers:

Lawrence E. Deetz, Ph.D.
Research Nutritionist
Product Development & Registration
Hoechst-Roussel Agri-Vet Company

Robert J. Grant, Ph.D.
Group Manager, Nutritional Research
Product Development & Registration
Hoechst-Roussel Agri-Vet Company

John McClain
Manager, Drug Regulatory Affairs
Product Development & Registration
Hoechst-Roussel Agri-Vet Company

13. Certification:

The undersigned petitioner certifies the information furnished in this Environmental Impact Analysis Report to be true, accurate and complete to the best of his knowledge.

DATE: 9-16-91

Lawrence E. Deetz
Research Nutritionist

June 1991
039EIAR2

ENVIRONMENTAL ASSESSMENT ATTACHMENTS

ATTACHMENT I

ROUSSEL UCLAF

DIRECTION DE LA PLANIFICATION DU DEVELOPPEMENT SANTE

Service des Techniques et Enregistrements

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

(According to 21 CFR 25.31)

102, ROUTE DE NOISY - BP N° 9 - 93230 ROMAINVILLE - Tél. : 33 (1) 48-91-48-91 - Télex ROUSS A 23[illegible] F - FAX : 33 (1) 48-91-48-00

ATTACHMENT I

ROUSSEL UCLAF

DIRECTION DE LA PLANIFICATION DU DEVELOPPEMENT SANTE

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HALOFUGINONE HYDROBROMIDE

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(According to 21 CFR 25.31)

102, ROUTE DE NOISY - BP N° 9 - 93230 ROMAINVILLE - Tél. : 33 (1) 48-91-48-91 - Télex ROUSS A 23 [illegible] FAX : 33 (1) 48-91-48-00

Roussel Uclaf Société Anonyme à Directoire et Conseil de Surveillance au capital de 534.666.000 F.

SIRET 542 008 081 00052 Siège Social : 35, Boulevard des Invalides - 75007 Paris SIREN 542 008 081 - B - R.C. Paris

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

(According to 21 CFR 25.31)

TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

1. DATE

February 1991

2. NAME OF APPLICANT

Roussel Uclaf

3. ADDRESS

35, bd. des Invalides
75007 Paris
FRANCE

4. DESCRIPTION OF THE PROPOSED ACTION

Manufacturing site

The production site for halofuginone hydrobromide is :

ROUSSEL UCLAF Plant 3
31, quai Armand Barbès

69250 NEUVILLE-sur-SAÔNE

FRANCE

The ROUSSEL UCLAF Plant 3 is located on the eastern side of a big river (the Saône) about 18 km north of Lyon.

ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

Environmental protection

The Roussel Uclaf Plant 3 which is involved in the production of halofuginone hydrobromide operates with all technical means required to protect, preserve and enhance the quality of the environment as specified by the French Law in the fields of environmental protection and occupational hygiene.

The ROUSSEL UCLAF Plant 3 is located on the eastern side of a big river (the Saône) about 18 km north of Lyons.

All the effluents emitted at this site are controlled and treated if required, prior to be discharged into the natural environment (atmosphere or river).

(See the flow-sheet of the effluents at the site of Neuville).

- Treatment of the liquid effluents

  . Incineration

  The incineration unit allows the destruction of the portions of polluted solvents which cannot be submitted to recovery operations. They are used as combustible for the destruction of the aqueous effluents having a high COD value.

  The operating conditions are adjusted to produce complete combustion, with a flame kept permanently at a temperature above 950°C. The introduction of a controlled amount of air constitutes an oxygen supply sufficient to reach the completion of the combustion.

  The gas resulting from the combustion is then washed to eliminate the salts and to lower the temperature prior to release into the atmosphere.

  (See the diagram of the incineration facilities).

  . Physico-chemical pre-treatment

  The physico-chemical pre-treatment facilities receive a part of the aqueous effluents emitted during the manufacturing operations (The remaining part is transferred directly to the incineration facilities).

  This pre-treatment is aimed at eliminating the mechanical impurities, at neutralizing and at de-sanding the effluent intended to be treated biologically.

These preliminary operations are followed by a homogenization and by a flocculation allowing the elimination of the primary sludges containing mainly mineral impurities.

(See the diagram of the physico-chemical pre-treatment facilities).

. Biological treatment

The pre-treated effluents are homogenized again and submitted to a biological treatment performed in 2 aerated pools. A bacterial fermentation develops which allows to eliminate the pollutants.

Prior to discharging the treated water into the river, the sludges constituted by the biological mass are decanted, partly recycled, and partly filtered to be transferred to an authorized waste disposal site.

(See the diagram of the biological treatment facilities).

The quality of the treated water is controlled on site permanently. In addition it is also tested externally at regular intervals.

- Treatment of the gaseous effluents

The gaseous effluents emitted by the boiler plant (operating with natural gas exclusively) and by the incineration facilities are controlled at regular intervals. In addition, the gaseous effluents of the incineration facilities are submitted to washing operations prior to be discharged into the atmosphere.

As regards the gaseous effluents emitted during the manufacture operations, they are treated at the source by applying appropriate means, depending on the nature of the pollutant.

Depending upon their quality, the solvents are either recycled or destroyed in facilities agreed by the French Government Authorities.

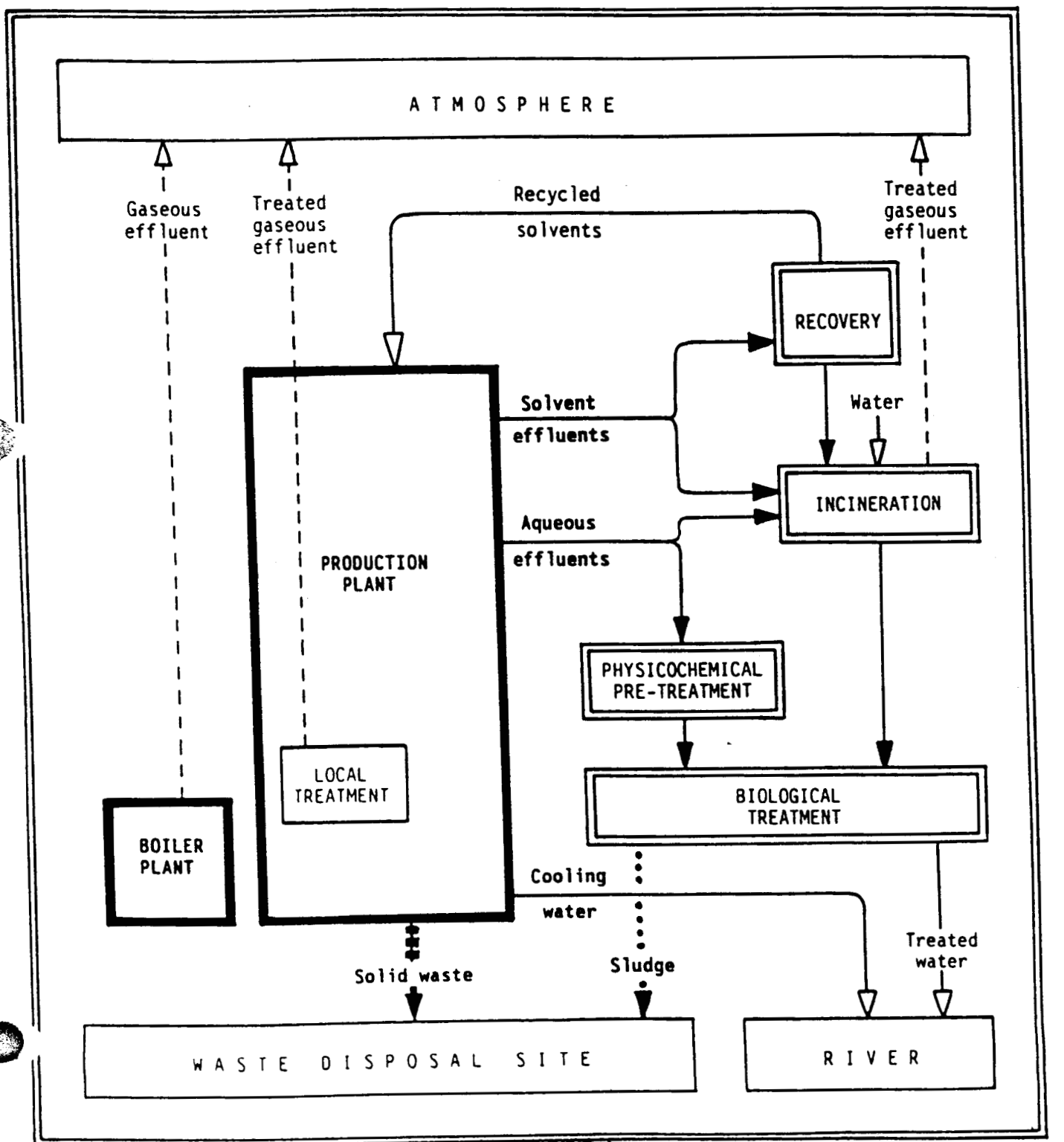
The aqueous effluents undergo a treatment adapted to their composition and then are transferred either to the biological treatment station, or to the incineration facilities.

The solid wastes are transferred to agreed waste disposal sites.

In addition, the personnel in charge of the manufacture is required to operate at any stage of the chemical and pharmaceutical process in conformity with the rules prescribed by the Ministry of Labor and governing occupational hygiene and safety.

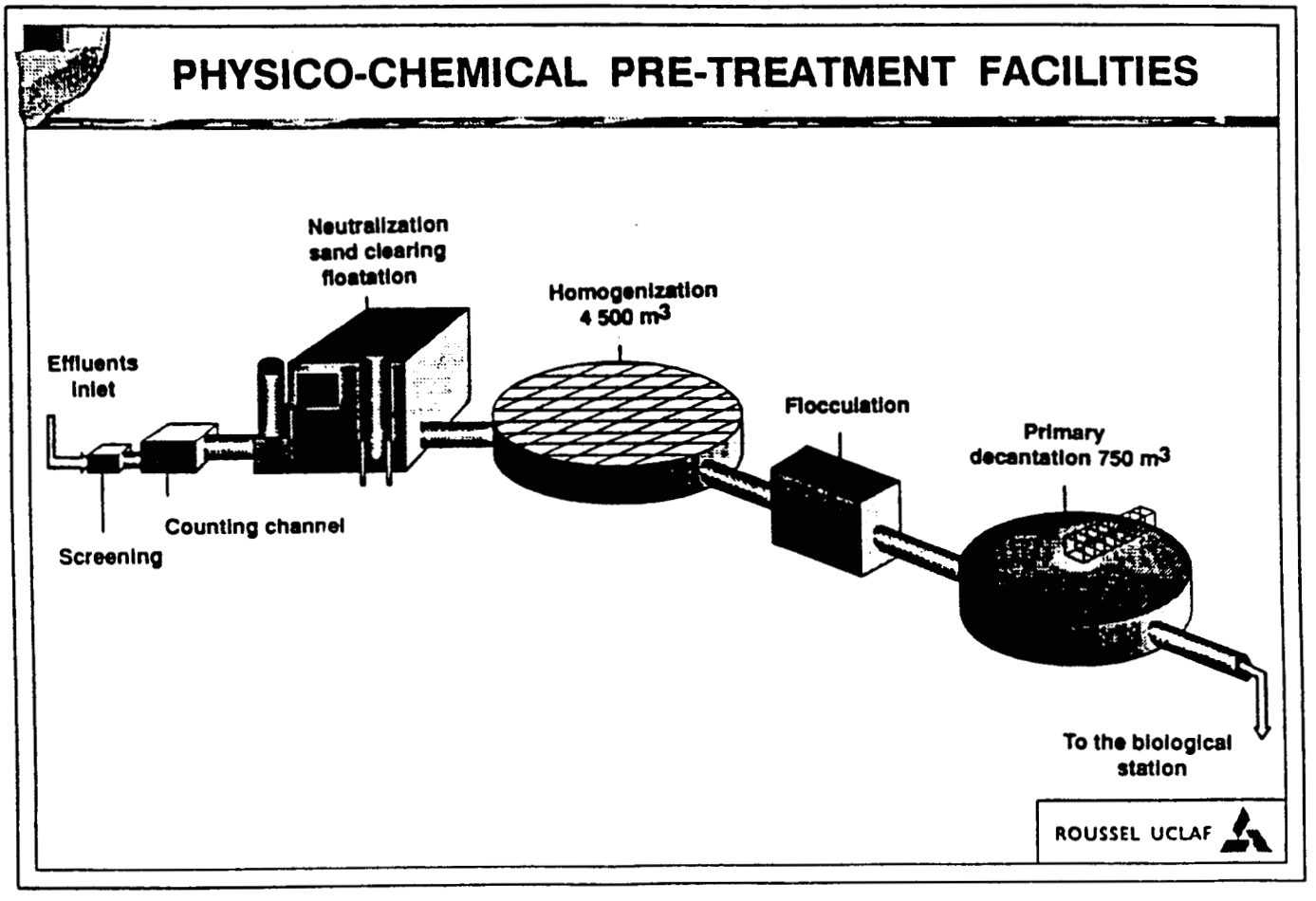
ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

Flow-sheet of effluents at the site of Neuville



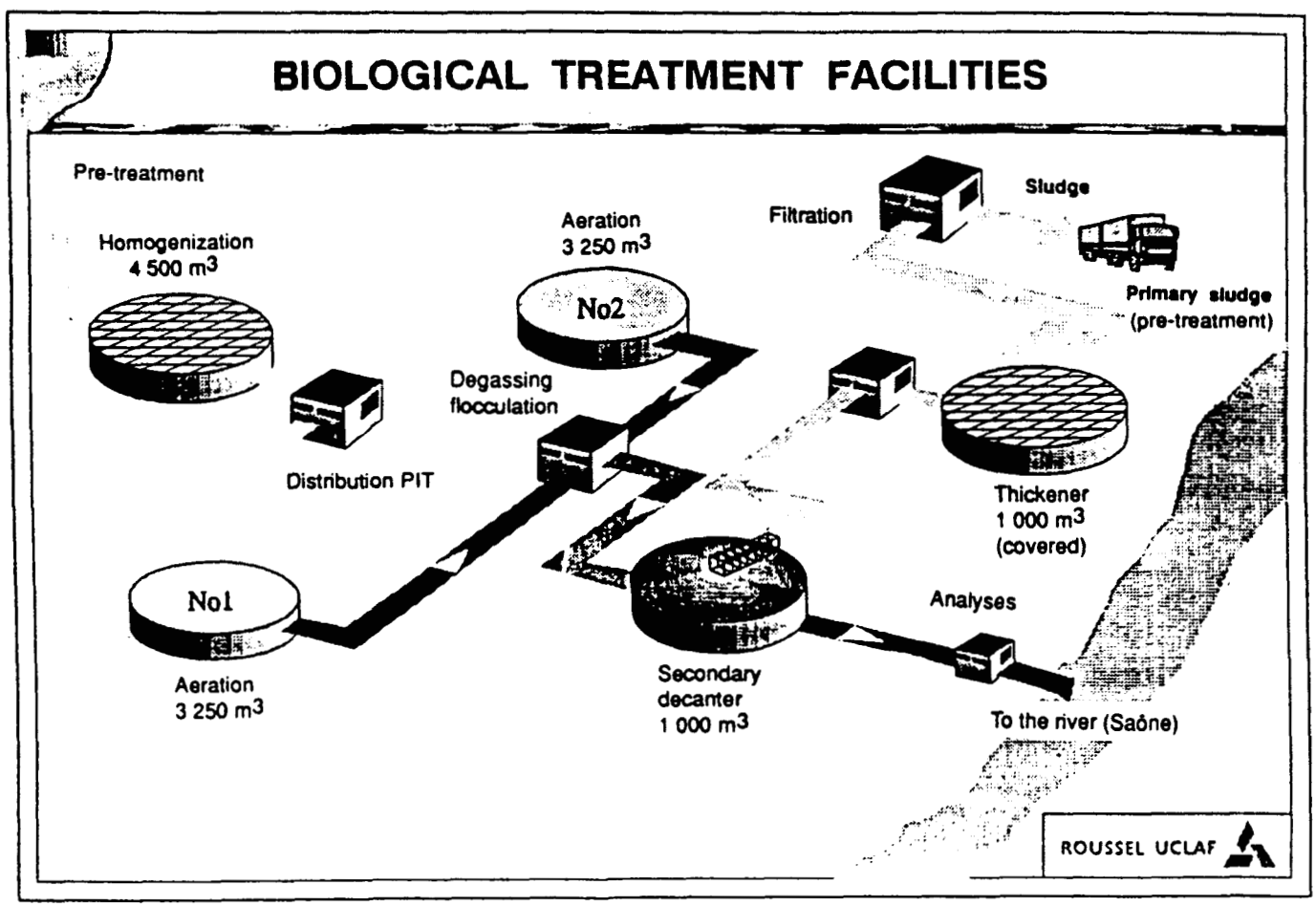
ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

Physico-Chemical pre-treatment facilities
(Neuville-sur-Saône)



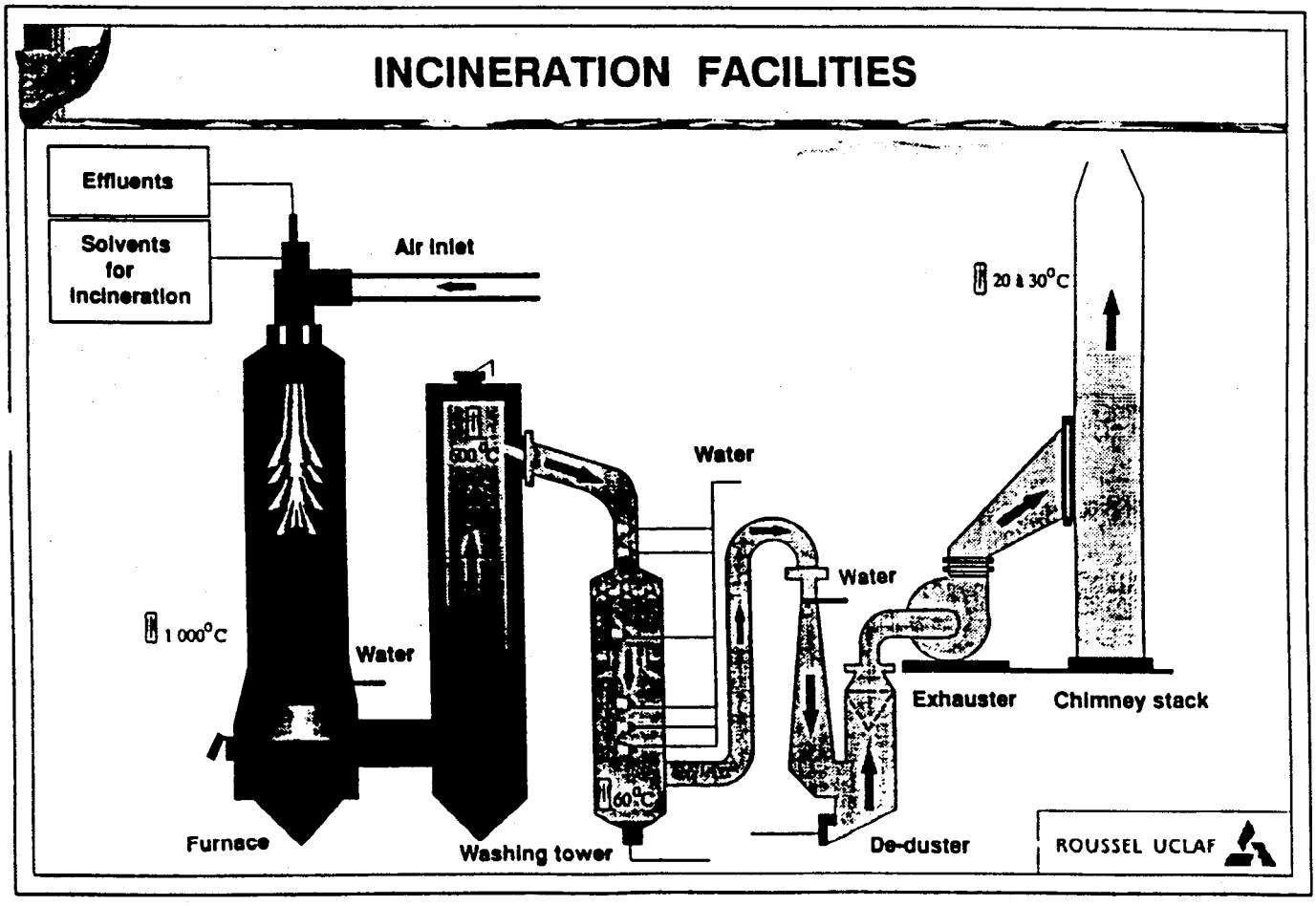
ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

Biological treatment facilities
(Neuville-sur-Saône)



ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

Incineration facilities
(Neuville-sur-Saône)



ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

6. INTRODUCTION OF SUBSTANCES INTO THE ENVIRONMENT

6.1. Substances expected to be emitted

The following effluents are produced at the various steps of the synthesis.

(See attached tables)

HALOFUGINONE HYDROBROMIDE

SUBSTANCES EXPECTED TO BE EMITTED

Step 1

Preparation of intermediate I

EFFLUENT			AMOUNT (per batch)	DE-POLLUTION TREATMENT
Liquid	Gaseous	Solid		
Lower phase of the mother liquors of filtration and washings after neutralization			300 L	Incineration
Water of the vacuum pump used to distil chloroform in the treatment of mother liquors of filtration and washings			13 000 L	Clean water
Concentrate after chloroform distillation Concentrate residue diluted with water			2 500 L	Biological treatment
Reflux methanol of dehydration			300 L	Incineration

HALOFUGINONE HYDROBROMIDE

SUBSTANCES EXPECTED TO BE EMITTED

Step 2

Preparation of intermediate II

EFFLUENT			AMOUNT (per batch)	DE-POLLUTION TREATMENT
Liquid	Gaseous	Solid		
Sodium hydroxide solution for the washing of the empty containers of allyl chloroformate			350 L	Biological treatment
Spent aqueous phase			7 000 L	Biological treatment
Water of the vacuum pump used to distil chloroform			35 000 L	Clean water
Washing with demineralized water of the regenerated chloroform			900 L	Biological treatment
Washing of distilled chloroform with - water demineralized - methanol			1 000 L 250 L	Biological treatment

HALOFUGINONE HYDROBROMIDE

SUBSTANCES EXPECTED TO BE EMITTED

Step 3

Preparation of halofuginone hydrobromide

EFFLUENT			AMOUNT (per batch)	DE-POLLUTION TREATMENT
Liquid	Gaseous	Solid		
Aqueous phase after chloroformic extraction			2 400 L	Biological treatment
Washing of the chloroformic phase with a sodium hydroxide solution			3 000 L	Biological treatment
Acid washing of the chloroformic phase			700 L	Biological treatment
Washing of the filter			1 000 L	Biological treatment
Mixture chloroform/allyl bromide			800 L	Transfer to a waste disposal site
Aqueous washing of distilled chloroform			1 600 L	Biological treatment
Aqueous mother liquors and washings of filtration			6 000 L	Biological treatment
Water of the vacuum pump for drying			19 000 L	Clean water
Distillation concentrate resulting from the treatment of the alcoholic washings of the precipitates			1 200 L	Biological treatment
	Excess hydrobromic acid		98 L	Neutralization column
		Residue of filtration of the chloroformic solution of compound A	140 kg	Transfer to a waste disposal site

6.2. Controls exercised

AT THE ROUSSEL UCLAF Plant 3 at NEUVILLE

- Controls exercised on the liquid effluents

The liquid effluents are controlled by the plant laboratory specializing in de-pollution testing according to methods described in the AFNOR (*) recommendations (French specifications) and adapted to the various types of concerned materials.

In addition, an outside laboratory agreed by the French Ministry of Environmental Protection is in charge of performing every three months a full analysis of homogeneous samples of liquid effluents.

Two types of liquid effluents are emitted at the site of Neuville :

. the liquid effluents resulting from the biological treatment and discharged into the Saône river

. the water used for cooling and discharged directly into the Saône river through a specific sewer system.

Several parameters are controlled on these effluents according to the following schedule :

PARAMETERS	LIQUID EFFLUENTS	
	Effluent after biological treatment	Water used for cooling
Flow-rate	continuously	continuously
Temperature	continuously	continuously
pH	continuously	continuously
COD	every day	every day
Suspended matter	every day	every day
Total nitrogen	every week	every week
Ammoniacal nitrogen	every day	every day
BOD5	every week	every week
Heavy metals - Copper - Chromium - Zinc	 every day every day every day	every week

(*) AFNOR is the abbreviation for ASSOCIATION FRANCAISE DE NORMALISATION i.e., FRENCH ASSOCIATION FOR STANDARDIZATION, the French equivalent of the International Standardization Organization (ISO).

ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

- Controls exercised on the gaseous effluents

Two types of gaseous effluents are released into the atmosphere :

. the gaseous effluents produced in the boiler plant

. the gaseous effluents produced in the incineration plant

Several parameters are controlled on these effluents :

PARAMETERS	GASEOUS EFFLUENTS	
	From boiler plant	From incineration plant
Oxygen	*	*
Carbon dioxide	*	*
Carbon monoxide		*
Smoke temperature	*	
Opacity	*	
Chlorine		*
Dust level		*

ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

6.3. Citation of, and statement of compliance with applicable emission requirements at the State level

The attached documentation deals with the regulatory aspects of the environmental protection at the production site of Neuville (Roussel Uclaf Plant 3).

- letter of compliance with the emission requirements and its translation
- applicable emission requirements issued by the Government Office of the concerned Department.

See attached sheets.

Documentation concerning

the Roussel Uclaf Plant 3 at Neuville-sur-Saône

(Rhône Department)

- Letter of compliance with the emission requirements
- Translation of this letter
- Decree issued by the Government Office (Préfecture) of the Rhône Department on December 21, 1983

  This document authorizes plant operation and contains the applicable emission requirements

- Decree issued by the Government Office (Préfecture) of the Rhône Department on August 7, 1990

  This document authorizes the operation of the new-built Industrial Scaling-up Center and contains the relevant emission requirements.

31, quai Armand Barbès
69583 Neuville-sur-Saône Cédex
Téléphone : 78-98-45-00
Télécopie : 78-98-49-49

ARRETE DE CLASSEMENT
CONCERNANT L'USINE DE NEUVILLE

L'établissement industriel ROUSSEL UCLAF situé 31 quai Armand Barbès à NEUVILLE-SUR-SAONE, département du Rhône, est soumis aux dispositions de la loi de la République Française n° 076-663 du 19 juillet 1976, relative aux installations classées pour la protection de l'environnement.

L'ensemble des prescriptions édictées pour l'établissement de Neuville-sur-Saône fait l'objet de l'arrêté préfectoral du 21 décembre 1983 régissant le fonctionnement des activités de l'établissement. C'est le préfet de la région Rhône-Alpes et du département du Rhône qui a pris cet arrêté.

Au fur et à mesure des modifications de la législation et des modifications apportées par la société ROUSSEL UCLAF, des arrêtés préfectoraux complémentaires modifient ou complètent l'arrêté préfectoral initial. Le dernier arrêté modificatif est en date du 21 mai 1990.

La bonne application des prescriptions imposées est contrôlée pour l'établissement de Neuville-sur-Saône par :

Monsieur le Directeur Régional de l'Industrie
et de la Recherche Rhône-Alpes
Inspecteur des Installations Classées
63 avenue Roger Salengro
69100 VILLEURBANNE

En ce qui concerne la sécurité et l'environnement, nous nous conformons aux prescriptions des arrêtés préfectoraux qui nous autorisent à exploiter.

En particulier, nous disposons sur le site pour les effluents aqueux d'une station de prétraitement physico-chimique et d'une station d'épuration biologique (1977 et 1981) ainsi que d'une installation d'incinération (1974).

..../

Nous appliquons une politique d'auto-surveillance pour l'ensemble des rejets (eau, air, sol) et de prévention des pollutions accidentelles.

En qualité de Directeur de l'Administration de l'Etablissement de Neuville-sur-Saône, je déclare que l'usine est exploitée conformément aux règles de respect de la santé, la sécurité, la salubrité publiques et de la protection de la nature et de l'environnement.

Le Directeur de l'Administration Générale
des Etablissements

J.-C. GUERRY

ATTACHMENT I

ROUSSEL UCLAF

DIRECTION DE LA PLANIFICATION DU DEVELOPPEMENT SANTE

Service des Techniques et Enregistrements

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

(According to 21 CFR 25.31)

102, ROUTE DE NOISY - BP N° 9 - 93230 ROMAINVILLE - Tél. : 33 (1) 48-91-48-91 - Télex ROUSS A 23[illegible] - Fax : 33 (1) 48-91-48-00

Roussel Uclaf Société Anonyme à Directoire et Conseil de Surveillance au capital de 534.666.000 F.
SIRET 542 008 081 00052 Siège Social : 35, Boulevard des Invalides - 75007 Paris SIREN 542 008 081 - B - R.C. Paris

ENVIRONMENTAL ASSESSMENT REPORT

(Nilutamide)

Translation

CATEGORIZATION DECREE OF THE NEUVILLE PLANT

The ROUSSEL UCLAF plant located 31, quai Armand Barbès at NEUVILLE-SUR-SAONE in the Rhône Department is subject to the provisions of the law N° 076-633 dated July 19, 1976 issued by the French Republic and governing the registered facilities (Installations classées) as regards the environmental protection.

The overall recommendations prescribed for the plant at Neuville-sur-Saône are subject of a prefectoral decree dated December 21, 1983 and governing the activities of the plant. This decree has been issued by the Prefect of Rhône-Alpes Region.

In accordance with subsequent changes introduced in the legislation or decided by the ROUSSEL UCLAF Company, additional prefectoral decrees amend or complement the initial decree. The most recent amendment is dated May 21, 1990.

The conformity of the Neuville plant to the required prescriptions is controlled by :

Monsieur le Directeur Regional de l'Industrie
et de la Recherche Rhône-Alpes
Inspecteur des Installations classées

63, avenue Roger Salengro
69100 VILLEURBANNE

As regards the safety and the environment we are in conformity with the provisions of the prefectoral decrees authorizing plant operation.

In particular, are available on the site, a physico-chemical pre-treatment facility for the aqueous effluents (1977), a biological treatment facility (1981) and an incineration facility (1974).

We apply a policy of self-surveillance dealing with all the effluents discharged into water, air or soil as well as with the accidental pollution.

As Administration Director of the Plant at Neuville-sur-Saône I declare that the facilities are operated in conformity with the rules governing the public health, safety and salubrity and the protection of nature and environment.

ARRETE DE CLASSEMENT

délivré par

LE PREFET, COMMISSAIRE DE LA REPUBLIQUE

DU DEPARTEMENT DU RHÔNE

en date du 21 Décembre 1983

PREFECTURE DU RHONE

DIRECTION
de
L'ADMINISTRATION GENERALE

3e BUREAU

69268 LYON CEDEX 1
TEL. (7) 862-20-26
POSTE N° 4305
MGL/LG

RÉPUBLIQUE FRANÇAISE
LIBERTÉ ÉGALITÉ FRATERNITÉ

000197

LYON, LE 21 DEC. 1983

ARRETE complémentaire

Le Préfet, Commissaire de la République de la Région Rhône-Alpes
Commissaire de la République du Département du Rhône

Commandeur de la Légion d'honneur

VU la loi N° 76.663 du 19 juillet 1976 relative aux Installations Classées pour la protection de l'Environnement ;

VU le décret N° 77.1133 du 21 septembre 1977 pris pour l'application de la loi susvisée ;

VU la déclaration présentée le 19 octobre 1983 par la société ROUSSEL UCLAF en vue de régulariser la situation administrative de ses activités exercées dans son usine de Neuville/sur/Saône, 31, quai A. BARBES (visées sous les N° 31°, 89.2, 253, 361 B2° de la nomenclature des Installations Classées) ;

VU les arrêtés préfectoraux d'autorisation des 4 février 1970, 12 août 1971, 8 novembre 1971, 20 août 1975, 23 octobre 1978, 7 janvier 1981 délivrés à la société ROUSSEL UCLAF ;

VU le rapport du 7 novembre 1983 de M. le Directeur Régional de l'Industrie et de la Recherche, Inspecteur des Installations Classées, précisant qu'il paraît nécessaire d'imposer à la société ROUSSEL UCLAF des prescriptions complémentaires en vue de mettre à jour, compléter et harmoniser les prescriptions contenues dans les divers arrêtés d'autorisation dont dispose l'établissement;

VU le rapport du 24 novembre 1983 de M. le Directeur Régional de l'Industrie et de la Recherche précisant que cet arrêté préfectoral vaudra récépissé de déclaration pour les activités susmentionnées régulièrement déclarées par l'établissement le 19 octobre 1983

VU l'avis du Conseil Départemental d'Hygiène exprimé dans sa séance du 24 novembre 1983 ;

ROUSSEL UCLAF

CONSIDERANT qu'il y a lieu d'imposer à la société ROUSSEL UCLAF [illegible] criptions complémentaires conformément à l'article 18 du décret 77.1133 du 21 septembre 1977 susvisé,

SUR proposition de M. le Secrétaire Général du PREFET :

ARRETE

Article 1er : La société ROUSSEL UCLAF est autorisée, sur le territoire des communes de Neuville-sur-Saône et Genay, à poursuivre l'exploitation, dans l'enceinte de son usine, des installations suivantes :

Réf. des installations	Désignation et volume des activités	Rubriques de la nomenclature
Aire 358	Installation de combustion capable de consommer en une heure une quantité de combustible représentant 6 000 thermies en pouvoir calorifique inférieur (incinérateur sous résiduaires).	153 bis
	Incinération de déchets industriels (effluents liquides)	167 c
	Dépôt aérien de 50 M3 de liquides inflammables de 2ème catégorie (fuel domestique)	253
Bâtiment 0440 extérieur	Atelier de charge d'accumulateurs, la puissance utilisable est égale à 7,5 KW	3-1°
Aire 1000	Dépôt d'ammoniac liquéfié, un réservoir de 41 tonnes.	50.1°
Aire 1002	Dépôt aérien de 1 400 M3 de liquides inflammables de 3ème catégorie et de 2ème catégorie	253
Aire 1003	Dépôt aérien de 1 400 M3 de liquides inflammables de 1ère et 2ème catégorie	253
Local 1006 et 1207	Local 1006 et 1207. Procédé de chauffage employant comme transmetteur de chaleur des fluides (à 190 litres) constitués par des corps organiques combustibles utilisés en circuit fermé. La température d'utilisation est inférieure au point de feu des fluides.	120 II

ARTICLE DEUX

LES PRESCRIPTIONS DU PRESENT ARTICLE SONT APPLICABLES A L'ENSEMBLE DE L'ETABLISSEMENT

---

1. GENERALITES :

1.1. Accidents ou incidents :

- Un compte-rendu écrit de tout accident ou incident sera conservé sous une forme adaptée à chaque unité de fabrication.

- Tout accident ou incident susceptible de porter atteinte aux intérêts visés à l'article 1er de la loi du 19 juillet 1976 sera déclaré sans délai à l'Inspecteur des Installations Classées. Sauf exception dûment justifiée, en particulier pour des motifs de sécurité, il est interdit de modifier en quoi que ce soit l'état des installations où a eu lieu l'accident ou l'incident tant que l'Inspecteur des Installations Classées n'a pas donné son accord et, s'il y a lieu, après l'autorisation de l'autorité judiciaire.

- Le responsable de l'établissement prendra les dispositions nécessaires pour qu'en toutes circonstances, et en particulier, lorsque l'établissement est placé sous la responsabilité d'un cadre délégué, l'Administration ou les services d'intervention extérieurs puissent disposer d'une assistance technique de l'exploitant et avoir accès à tous les documents et informations disponibles dans l'établissement et utiles à leur intervention.

1.2. Contrôles et analyses :

Indépendamment des contrôles explicitement prévus dans le présent arrêté, l'Inspecteur des Installations Classées pourra demander en cas de besoin, que des contrôles spécifiques, des prélèvements et des analyses soient effectués par un organisme dont le choix sera soumis à son approbation s'il n'est pas agréé à cet effet, dans le but de vérifier le respect des prescriptions d'un texte pris au titre de la règlementation sur les installations classées ; les frais occasionnés par ces études seront supportés par l'exploitant.

.../...

2 - BRUITS ET VIBRATIONS :

2.1. L'établissement sera construit, équipé et exploité de façon que son fonctionnement ne puisse être à l'origine de bruits ou vibrations susceptibles de constituer une gêne pour la tranquillité du voisinage.

2.2. La gêne éventuelle sera évaluée conformément à la norme française NF/S.31.010.

Il y a présomption de gêne lorsque le niveau d'évaluation du bruit d'ambiance, déterminé conformément au § 7 de la norme, dépasse la valeur du niveau de bruit limite pour la période considérée.

2.2.1. Les bruits à l'intérieur des locaux habités ou occupés par des tiers susceptibles d'être gênés, seront mesurés conformément au § 6.2. de la norme dans le cas où le bruit de l'installation en cause est transmis principalement par voie solid

2.2.2. Les bruits transmis par voie aérienne vers les locaux habités et occupés par des tiers seront mesurés à l'extérieur des bâtiments contenant ces locaux suivant les modalités du § 6.1. de la norme.

2.3. Niveaux de bruits limite (en dB (A)) :

Le niveau d'évaluation ne devra pas excéder du fait de l'établissement les seuils fixés dans le tableau ci-dessous :

	JOUR 7h à 20h	PERIODE INTERMEDIAIRE 6h à 7h - 20h à 22h dimanches et jours fériés	NUIT 22h à 6h
A l'intérieur des bâtiments occupés ou habités par des tiers (mesures effectuées conformément au § 2.2.1.)	35	30	30
En limite de propriété de l'établissement	65	60	55

2.4. La période de référence servant au calcul de la moyenne au § 7 de la norme sera de 8h pour le jour et la demi-heure la plus bruyante pour les périodes intermédiaires et pour la nuit.

.../...

2.5. Les véhicules et les engins de chantier, utilisés à l'intérieur de l'établissement, seront conformes à la réglementation en vigueur. En particulier, les engins de chantier seront d'un type homologué au titre du décret du 18 avril 1969 modifié.

2.6. L'usage de tous appareils de communication par voie acoustique (sirènes, avertisseurs, haut-parleurs, etc...) gênant pour le voisinage est interdit, sauf si leur emploi est exceptionnel et réservé à la prévention et au signalement d'incidents graves ou d'accidents.

2.7. Les machines fixes susceptibles d'incommoder le voisinage par les trépidations seront isolées par des dispositifs antivibratiles efficaces.

.../...

3.4.3. Des dispositions seront prises pour limiter les émissions particulières diffuses, (abris, capotage, arrosage...).

3.5. Station météorologique :

La vitesse et la direction du vent sur le site de l'établissement seront mesurées et enregistrées en continu et conservées durant un mois.

3.6. Dispositifs indiquant la direction du vent :

Des dispositifs, visibles de jour comme de nuit, indiquant la direction locale du vent seront mis en place à proximité des installations susceptibles d'émettre des substances dangereuses en cas de fonctionnement anormal.

3.7. Contrôles à l'émission :

En période de fonctionnement normal des installations, et sur demande de l'Inspecteur des Installations Classées, il sera procédé, éventuellement par un organisme spécialisé, à des mesures de concentrations ou de flux de polluants à l'émission.

3.8. Contrôle dans l'environnement :

A la demande de l'Inspecteur des Installations Classées et suivant des modalités qu'il définira, il sera procédé dans l'environnement à des campagnes de mesures visant à contrôler les effets des polluants susceptibles d'être émis par les installations.

.../...

3 - POLLUTION ATMOSPHERIQUE :

3.1. Généralités :

3.1.1. Il est interdit d'émettre dans l'atmosphère des fumées, des buées, des suies, des poussières ou des gaz susceptibles d'incommoder le voisinage et de nuire à la santé ou à la sécurité publique.

3.1.2. La forme des conduits d'évacuation à l'atmosphère, notamment dans la partie la plus proche du débouché doit être conçue de manière à favoriser au maximum l'ascension et la diffusion des effluents rejetés en fonctionnement normal des installations.

3.2. Pollutions accidentelles :

Les dispositions nécessaires seront prises pour réduire la probabilité des émissions accidentelles et pour que les rejets correspondant ne présentent pas de dangers pour la santé et la sécurité des personnes. La conception et l'emplacement des dispositifs de sécurité destinés à protéger les appareillages contre une surpression interne devront être tels que cet objectif soit satisfait, sans pour cela diminuer leur efficacité ou leur fiabilité.

3.3. Installations de combustion :

3.3.1. Les générateurs à fluides caloporteurs de puissance supérieure à 87 KW sont soumis aux dispositions de l'arrêté du 20 juin 1975 relatif à l'équipement et à l'exploitation des installations thermiques en vue de réduire la pollution atmosphérique et d'économiser l'énergie.

3.3.2. Les autres installations de combustion sont soumises aux dispositions de l'instruction du 24 novembre 1970 relative à la construction des cheminées.

3.3.3. La teneur en soufre des combustibles utilisés devra être en permanence inférieur à 2 %.

3.4. Emissions de poussières :

3.4.1. Les cheminées émettant des poussières fines seront construites et exploitées conformément aux dispositions de l'instruction ministérielle du 13 août 1971.

3.4.2. Les effluents gazeux canalisés ne devront pas contenir plus de 50 mg/m3 de poussières à leur rejet à l'atmosphère.

.../...

4 - POLLUTION DES EAUX :

4.1. Prélèvement d'eau :

4.1.1. L'utilisation d'eaux souterraines pour des usages industriels, et spécialement celles dont la qualité permet les emplois domestiques, doit être limitée par exemple par la mise en oeuvre de circuits de refroidissement fermés ou d'aéroréfrigérants.

4.1.2. Annuellement l'exploitant fera part à l'Inspecteur des Installations Classées de ses consommations d'eau et de ses projets concernant leur réduction.

4.2. Différents types d'effluents liquides :

Les effluents liquides de l'établissement comportent :

- les résidus et goudrons incinérables par l'exploitant ou un organisme spécialisé, collectés dans les installations qui les génèrent .

- les effluents traités dans la station d'épuration biologique spécialisée pour les eaux industrielles désignée dans le présent arrêté par les termes "station d'épuration " . Les effluents de celle-ci sont rejetés dans la Saône, rive gauche au P.K. 21,820.

- Les autres effluents rejetés directement dans la Saône , rive gauche au P.K.21,180 . Ces effluents sont désignés par les termes "rejet direct" dans le présent arrêté .

4.3. Collecte des effluents liquides :

4.3.1. Toutes dispositions seront prises pour isoler à l'état le plus concentré possible les divers effluents issus de chaque installation en vue de faciliter leur traitement

4.3.2. L'Inspecteur des Installations Classées pourra imposer après examen de l'étude technique et économique le traitement ou la destruction d'un effluent donné lorsque sa concentration et la nature de ses polluants le justifient et le permettent.

.../...

4.3.3. Le réseau de collecte des effluents devant en subir un traitement, ou être détruit, ne comportera pas en période de fonctionnement normal de liaisons permettant le rejet direct dans le milieu naturel récepteur, ou les égoûts extérieurs à l'établissement.

4.3.4. Les égoûts devront être étanches et leur tracé devra en permettre le curage. Leurs dimensions et les matériaux utilisés pour leur réalisation devront permettre une bonne conservation de ces ouvrages dans le temps. Lorsque cette condition ne peut être respectée en raison des caractéristiques des produits transportés, ils devront être visitables ou explorables par tout autre moyen. Les contrôles de leur bon fonctionnement, donneront lieu à compte-rendu écrit tenu à la disposition de l'Inspecteur des Installations Classées.

4.3.5. Les égoûts véhiculant des eaux polluées par des liquides inflammables, ou susceptibles de l'être, devront comprendre une protection efficace contre le danger de propagation de flammes.

4.3.6. Les dispositifs de rejets devront être aisément accessibles et aménagés de manière à permettre l'éxécution de prélèvements dans l'effluent ainsi que la mesure de son débit dans les meilleures conditions de précision possibles.

4.3.7 Un plan du réseau d'égoût, faisant apparaitre les secteurs collectés, les regards et points de branchement sera établi, régulièrement tenu à jour, et tenu à la disposition de l'Inspecteur des Installations Classées.

4.4. Quantité d'eau rejetée :

4.4.1. Le débit journalier d'eaux polluées rejetées dans le milieu naturel est limité à 32 000 m3 pour le rejet direct et à 4 300 m3 pour le rejet de la station d'épuration

4.4.2. A l'exception des cas accidentels où la sécurité des personnes ou des installations se trouve compromise, il est interdit d'abaisser les concentrations en substances polluantes du rejet direct par simple dilution autre que celle résultant du rassemblement des effluents normaux de l'usine ou des nécessités de traitement d'épuration.

4.5. Qualité des effluents rejetés :

4.5.1. Les effluents devront être exempts :

. de matières flottantes.
. de produits susceptibles de dégager en égout ou dans le milieu naturel directement ou indirectement, après mélange avec d'autres effluents, des gaz ou vapeurs toxiques ou inflammables.

.../...

. de tous produits susceptibles de nuire à la conservation des ouvrages, ainsi que des matières déposables ou précipitables qui, indirectement ou directement, après mélange avec d'autres effluents, seraient susceptibles d'entraver le bon fonctionnement des ouvrages,
. de substances capables d'entraîner la destruction du poisson à l'aval du point de déversement.

De plus, ils ne devront pas provoquer de coloration notable du milieu récepteur.

Leur pH devra être compris entre 5,5 et 8,5 et leur température devra être inférieure à 30° C.

4.5.2. Les caractéristiques des eaux résiduaires des rejets notamment la concentration moyenne sur deux heures, la concentration journalière et le flux journalier, de chacun des principaux polluants seront inférieures ou égales aux valeurs prévues dans les tableaux constituant l'annexe du présent arrêté, et suivant les échéances fixées.

4.6. Contrôle des rejets :

4.6.1. Seront mesurés et enregistrés en continu, sur chaque effluent préalablement homogénéisé :

Rejet station d'épuration	Rejet direct
. le PH,	. le pH
. la température,	. la température
. le débit	. le débit
. la DCO	

Les bandes éditées, horodatées, seront conservées pendant un an à la disposition de l'Inspecteur des Installations Classées.

4.6.2. Un échantillonnage proportionnel au débit du rejet sera effectué en continu sur chacun des effluents homogénéisés.

- par période de 24 heures sera prélevé un échantillon de 2 litres au moins, représentatif des caractéristiques moyennes de l'effluent rejeté durant cette période. Cet échantillon sera conservé à 4° C pendant sept jours, à la disposition de l'Inspecteur des Installations Classées, dans un récipient fermé sur lequel seront portées les références du prélèvement.

.../...

ROUSSEL UCLAF

Sur un échantillon représentatif des caractéristiques de l'effluent [illegible] pour les précédentes, l'exploitant mesurera ou donera :

. chaque jour :

sur le rejet biologique	sur le rejet direct
le pH	le pH
la DCO	la DCO
la DBO5	le cuivre
l'azote ammoniacal NH4+	l'azote ammoniacal NH4+

. une fois par semaine

sur le rejet biologique	sur le rejet direct
l'azote kjeldhal	la DBO5
	l'azote kjeldhal

4.6.3. Pour l'application des paragraphes 4.6.1. et 4.6.2., et sous réserve de l'accord de l'Inspecteur des Installations Classées, le contrôle en continu de la demande chimique en oxygène de l'effluent pourra être remplacé par celui d'un autre paramètre représentatif de la pollution oxydable (demande totale en oxygène par exemple). L'Inspecteur des Installations Classées fixera, dans ce cas, les valeurs correspondantes autorisées pour ce paramètre.

4.6.4 L'exploitant fera procéder tous les trois mois, en période de fonctionnement des ateliers, à une analyse d'échantillons représentatifs des caractéristiques moyennes de l'effluent rejeté. L'analyse portera normalement sur la totalité des paramètres mentionnés dans l'annexe du présent arrêté, elle sera effectuée par un organisme dont le choix sera soumis à l'Inspecteur des Installations Classées s'il n'est pas agréé à cet effet.

Pour l'application de cette disposition l'Inspecteur des Installations Classées fixera :

. le nombre d'échantillons, sans que celui-ci puisse excéder 12 ;

. le temps d'échantillonnage.

Il pourra de plus, au vu de résultats probants réduire la fréquence des analyses ou les limiter aux dosages des éléments les plus caractéristiques de la pollution émise par l'établissement.

4.6.5. Lors de pollution importante du milieu récepteur, l'Inspecteur des Installations Classées pourra demander que des analyses spéciales des rejets soient effectuées dans les délais les plus brefs, éventuellement sous le contrôle d'un organisme indépendant.

4.6.6. Bilans

- Un état récapitulatif des analyses et mesures effectuées en application du présent paragraphe 4.6. sera adressé chaque mois à l'Inspecteur des Installations Classées suivant des formes et délais qu'il définira. Copie sera adressée au service chargé de la police des eaux.

- L'exploitant présentera à l'Inspecteur des Installations Classées tous les ans en début d'année, le bilan des actions entreprises, les projets et les études en cours, pour réduire les rejets d'azote total et d'azote ammoniacal.

4.7. Prévention des pollutions accidentelles :

Toutes dispositions seront prises pour qu'il ne puisse y avoir en cas d'incident de fonctionnement se produisant dans l'enceinte de l'établissement (rupture de récipient, fuite d'échangeur...) déversement direct vers le milieu naturel de matières dangereuses ou insalubres dont la nature et la quantité seraient susceptibles d'avoir des conséquences sur ce milieu. Les dispositions constructives et d'exploitation suivantes seront en particulier respectées.

4.7.1. Capacités de rétention :

Les unités, parties d'unités ou stockages susceptibles de contenir même occasionnellement un produit qui en raison de ses caractéristiques et des quantités mises en oeuvre est susceptible de porter atteinte à l'environnement lors d'un rejet direct seront équipés de capacité de rétention ou aménagés pour permettre la collecte des produits accidentellement répandus vers une installation permettant d'assurer leur rétention et leur traitement (station de prétraitement par exemple).

Lorsque les propriétés respectives des produits dangereux et ceux des agents d'extinction ou de refroidissement le permettent, les dispositions seront prises pour que l'utilisation des moyens de protection ne puisse entraîner d'écoulement notable de ces substances dangereuses au milieu naturel.

Les capacités de rétention et le réseau de collecte et de stockage des égouttures et effluents accidentels ne comporteront aucun moyen de vidange par simple gravité dans l'égout se déversant dans le milieu naturel.

Les aires de chargement, de stockage intermédiaire ou de dépotage des réservoirs mobiles de matières dangereuses ou insalubres tels que fûts, conteneurs, citernes routières, wagons citernes satisferont aux dispositions ci-dessus.

4.7.2. Circulation des produits dangereux ou insalubres à l'intérieur de l'établissement :

Les canalisations de transport de fluides dangereux ou insalubres à l'intérieur de l'établissement seront maintenues parfaitement étanches. Les matériaux utilisés pour leur réalisation et leurs dimensions devront permettre une bonne conservation de ces ouvrages. Lorsque cette condition ne peut être satisfaite en raison des caractéristiques des produits à transporter, elles devront être visitables extérieurement. Des contrôles périodiques donnant lieu à compte-rendu seront conservés à la disposition de l'Inspecteur des Installations Classées durant un an.

En aucun cas, les tuyauteries de produits dangereux ou insalubres seront situées dans les égoûts ou dans les conduits en liaison directe avec les égoûts.

4.7.3. Etat des stockages :

Le bon état de conservation des stockages fixes ou mobiles de produits dangereux ou insalubres et leurs équipements, situés dans l'établissement ou introduits de façon temporaire dans son enceinte, doivent faire l'objet d'une surveillance particulière de la part de l'exploitant.

4.7.4. Collecte des eaux de procédé susceptibles d'être polluées accidentellement :

- Les eaux de procédé susceptibles d'être polluées accidentellement et d'entrainer un dépassement des seuils fixés au paragraphe 4.5. ci-dessus transiteront par une capacité tampon permettant leur contrôle avant rejet.

- Dans les secteurs particulièrement exposés au risque de pollution accidentelle des moyens de surveillance appropriés de la qualité des effluents liquides seront mis en place.

- Les causes de toute variation anormale des caractéristiques des effluents feront l'objet d'une analyse systématique, dans le but de vérifier qu'elles ne constituent pas une anomalie susceptible de conduire à une pollution accidentelle.

4.7.5. Eaux de refroidissement :

Le rejet d'eaux de refroidissement en circuit ouvert ou de purges de déconcentration de circuits fermés, et provenant de circuits de refroidissement alimentant des échangeurs et appareillages où circulent, même occasionnellement, des produits dangereux ou insalubres à des pressions supérieures à celles des circuits d'eau, ne peut être effectué qu'après avoir vérifié qu'elles ne sont pas accidentellement polluées.

4.8. Conséquences des pollutions accidentelles :

4.8.1. Pollution des eaux de surface :

En cas de pollution accidentelle provoquée par l'établissement, l'exploitant devra être en mesure de fournir dans les délais les plus brefs les renseignements connus dont il dispose permettant de déterminer les mesures de sauvegarde à prendre pour ce qui concerne les personnes, la faune, la flore, les ouvrages exposés à cette pollution, en particulier :

1 - La toxicité et les effets des produits rejetés ;

2 - Leur évolution et conditions de dispersion dans le milieu naturel ;

3 - La définition des zones risquant d'être atteintes par des concentrations en polluants susceptibles d'entrainer des conséquences sur le milieu naturel ou les diverses utilisations des eaux ;

4 - Les méthodes de destruction des polluants à mettre en oeuvre ;

5 - Les moyens curatifs pouvant être utilisés pour traiter les personnes, la faune, ou la flore exposées à cette pollution.

6 - Les méthodes d'analyses ou d'identification et organismes compétents pour réaliser ces analyses.

L'ensemble des dispositions prises et les éléments bibliographiques rassemblés par l'exploitant pour satisfaire aux prescriptions ci-dessus feront l'objet d'un dossier de lutte contre la pollution des eaux de surface, tenu à la disposition de l'Inspecteur des Installations Classées et régulièrement mis à jour pour tenir compte de l'évolution des connaissances et des techniques.

Ce dossier comprendra en particulier :

- les informations prévues aux points 1, 2, 4, 5, et 6 ci-dessus pour les produits (utilisés ou fabriqués dans l'établissement, même à titre de produit intermédiaire)qui en raison de leurs caractéristiques et des quantités mises en oeuvre peuvent porter atteinte à l'environnement lors d'un rejet direct.
- une note exposant la méthodologie et les moyens techniques mis en oeuvre pour satisfaire rapidement, lors d'un sinistre, aux dispositions du paragraphe 3 ci-dessus. Des essais de diffusion, en grandeur réelle ou sur maquette, effectués par un organisme spécialisé indépendant, devront conforter les hypothèses de base de cette étude.

4.8.2. Pollution des eaux souterraines :

La qualité des eaux souterraines susceptibles d'être polluées par l'établissement fera l'objet d'une surveillance, notamment en vue de détecter des pollutions accidentelles. Des prélèvements et analyses de ces eaux seront effectués au minimum deux fois par an.

.../...

Les modalités pratiques de cette surveillance seront définies dans une consigne soumise à l'approbation de l'Inspecteur des Installations Classées.

En cas de pollution des eaux souterraines par l'exploitant, toutes dispositions devront être prises pour faire cesser le trouble constaté.

4.9. Consignes d'exploitation :

Les consignes d'exploitation des unités, stockages ou équipements divers, susceptibles d'être à l'origine d'une pollution accidentelle des eaux, comporteront explicitement les contrôles à effectuer, en marche normale, à la suite d'un arrêt après des travaux de modification ou d'entretien, de façon à vérifier que ces installations restent conformes aux dispositions du présent arrêté.

Pour ce qui concerne les contrôles à effectuer à la suite des travaux d'entretien ou d'un arrêt prolongé, l'exécution de chacun d'eux sera sanctionné par le visa d'une fiche spécialement établie pour suivre le bon déroulement des opérations de remise en service des installations(feuille de travail par exemple)

.../...

5 - DECHETS :

5.1. Généralités :

L'exploitant organisera par consigne la collecte et l'élimination des différents déchets générés par l'établissement en respectant les dispositions législatives et règlementaires en vigueur (loi du 15 juillet 1975 et textes d'application) ainsi que les prescriptions du présent arrêté.

5.2. Stockage - Parc à déchets :

Il sera mis en place dans l'établissement un parc à déchets dont l'aménagement et l'exploitation devront satisfaire aux différentes dispositions suivantes :

1 - Toutes précautions seront prises pour que :

- les dépôts ne soient pas à l'origine d'une gêne pour le voisinage (odeurs...) ou d'une pollution des eaux superficielles ou souterraines, ou d'une pollution des sols.

- les mélanges de déchets ne puissent être à l'origine de réactions non contrôlées conduisant en particulier à l'émission de gaz ou d'aérosols toxiques ou à la formation de produits explosifs.

2 - Les déchets pourront être conditionnés dans des emballages en bon état ayant servi à contenir d'autres produits (matières premières notamment), sous réserve que :

- il ne puisse y avoir de réactions dangereuses entre le déchet et les produits ayant été contenus dans l'emballage.

- les emballages soient identifiés par les seules indications concernant le déchet.

5.3. Identification des déchets industriels spéciaux :

Les déchets industriels spéciaux au sens du décret n° 77.974 du 19 août 1977 produits par l'établissement feront, par type, l'objet d'une fiche d'identification. Celle-ci précisera notamment, le classement du déchet suivant la nomenclature nationale, les indications permettant son identification et toutes informations utiles à son élimination conformément aux dispositions de la loi du 15 juillet 1975 et de ses textes d'application.

Cette fiche sera communiquée à l'éliminateur et une copie en sera tenue à disposition de l'Inspecteur des Installations Classées.

.../...

5.4. Elimination :

- Toute incinération à l'air libre de déchets de quelque nature qu'ils soient est interdite. Cependant, il pourra être dérogé à cette prescription en ce qui concerne les déchets non souillés par des substances nocives ou toxiques (papier, palettes, etc...) lorsque ces derniers seront utilisées comme combustibles lors des "exercices incendie".

- L'élimination des déchets, à l'extérieur de l'établissement ou de ses dépendances, devra être assurée par une entreprise spécialisée.

5.5. Contrôles :

- Pour chaque enlèvement les renseignements minimum suivants seront consignés sur un document de forme adaptée (registre, fiche d'enlèvement,...) et conservé pendant une durée d'au moins 5 ans :

. nature et composition du déchet (avec référence au numéro de nomenclature nationale des déchets) ;

. Quantité enlevée ;

. date d'enlèvement ;

. nom de la société de ramassage et numéro d'immatriculation du véhicule utilisé ;

. destination du déchet (éliminateur) ;

. nature de l'élimination effectuée.

- La production de déchets dans l'établissement, leur valorisation, leur élimination (y compris interne à l'établissement), feront l'objet d'un bilan périodique transmis à l'Inspecteur des Installations Classées dans des formes et délais qu'il définira.

.../...

- A N N E X E 1.1.

REJET DIRECT

VALEURS LIMITES DES CONCENTRATIONS EN MILLIGRAMMES PAR LITRE

POLLUANT	CONCENTRATION MOYENNE CALCULEE SUR UNE SEMAINE			
	Immédiatement	à compter du 01.01.1985	à compter du 01.01.1986	à compter du 01.01.1987
DCO	190	150	115	75
DBO	40	35	25	
MES	30			
Azote Kjeldhal	140			
Azote ammoniacal	130			
Hydrocarbures (norme NFT 90203)	10			
Composés phénoliques	0,3			
Cyanures	0,1			
Chrome total	0,7			
Zinc	0,3			
Nickel	0,2			
Cuivre	5	0,2		

Les concentrations moyennes sur deux heures ne devront pas être supérieures de plus de quarante pour cent aux valeurs ci-dessus.

VALEURS LIMITES DES FLUX REJETES EN KILOGRAMMES PAR JOUR

POLLUANT	FLUX MOYEN JOURNALIER CALCULE SUR UNE SEMAINE			
	Immédiatement	à compter du 01.01.1985	à compter du 01.01.1986	à compter du 01.01.1987
DCO	5 000	2 850	2 150	1 450
DBO	1 050	650	470	430
MES	300			
Azote Kjeldhal	3 600			
Azote ammoniacal	3 400			
Cuivre	130	5		

Les flux moyens sur deux heures ne devront pas dépasser onze pour cent de leur valeur moyenne journalière fixée ci-dessus.

.../...

ANALYSES ET CONTROLES A EFFECTUER PERIODIQUEMENT

. Effluents pour lesquels une concentration maximale est fixée.

. Hydrocarbures (norme 90114)
détergents anioniques
substances extractibles au chloroforme (SEC)
nitrites, nitrates, phosphates, sulfates
chlorures, sodium, potassium
manganèse, calcium, cadmium, mercure aluminium, étain,
plomb, arsenic, fer, magnésium

. Test de toxicité sur daphnies

. conductivité.

- A N N E X E 1.2.

REJET STATION D'EPURATION

VALEURS LIMITES DES CONCENTRATIONS EN MILLIGRAMMES PAR LITRE

POLLUANT	CONCENTRATION MOYENNE CALCULEE SUR UNE SEMAINE
DCO	650
DBO	240
MES	75
Azote Kjeldhal	240
Azote ammoniacal	220
Composés phénoliques	0,1
Cyanures	0,1
Cuivre	0,2
Zinc	0,4
Hydrocarbures NFT 90203	10

Les concentrations moyennes sur deux heures ne devront pas être supérieures de plus de 90 % aux valeurs ci-dessus.

VALEURS LIMITES DES FLUX REJETES EN KILOGRAMMES PAR JOUR

POLLUANT	FLUX MOYEN JOURNALIER CALCULE SUR UNE SEMAINE
DCO	1 600
DBO	600
MES	200
Azote Kjeldhal	600
Azote ammoniacal	550
Cuivre	0,5
Zinc	1

Les flux moyens sur deux heures ne devront pas dépasser seize pour cent de leur valeur moyenne journalière fixée ci-dessus.

.../...

ANALYSES ET CONTROLES A EFFECTUER PERIODIQUEMENT

- Effluents pour lesquels une concentration maximale est fixée.

- Hydrocarbures (normes NFT 90202 et NFT 90114)
  détergents anioniques
  substances extractibles au chloroforme
  nitrites, nitrates, phosphates, sulfates
  manganèse, calcium, cadmium, mercure, aluminium
  étain, plomb, arsenic, fer, magnésium
  chrome total, nickel.

- Test de toxicité sur daphnies.

- conductivité.

Article 3 : Conformément à l'article 27 du décret N° 77.1133 du 21 septembre 1977 pris pour l'application de la loi du 19 juillet 1976, le présent arrêté sera affiché à la Mairie de Neuville-sur-Saône pendant une durée minimum d'un mois avec mention de la possibilité pour les tiers de consulter sur place (ou à la Préfecture du RHONE - Direction de l'Administration Générale - 3ème bureau) le texte des prescriptions. Procès-verbal de l'accomplissement de cette formalité sera dressé par les soins du Maire.

Article 4 : Faute par la société exploitante de se conformer aux prescriptions précédemment édictées, il sera fait application des sanctions administratives et pénales prévues par la loi du 19 juillet 1976 précitée.

Article 5 : M. le Secrétaire Général du RHONE et M. le Directeur Régional de l'Industrie et de la Recherche, Inspecteur des Installations Classées, sont chargés chacun en ce qui le concerne de veiller à l'exécution du présent arrêté dont une ampliation sera adressée à :

- M. le Maire de Neuville-sur-Saône spécialement chargé d'assurer l'affichage prescrit par l'article 3 susvisée ;

- au Conseil Municipal de Neuville-sur-Saône ;

- au Conseil Municipal de Genay ;

- à la société ROUSSEL UCLAF, par la voie administrative.

LYON, le 21 DEC. 1983

Pour Ampliation.
Le Chef de Bureau Délégué

LE PREFET,

Pour le Préfet,
Commissaire de la République :
Le Secrétaire Général,

Michel FESTY

"TRANSLATION"

Prefecture of the Rhône
General Administration Department
3rd Office
Lyon, December 21, 1983
Extension 4305
MGL/LG

Roussel Uclaf
Republic of France

Supplementary ORDER

The Prefect, Commissioner of the Republic of the Rhône-Alpes Region
Commissioner of the Republic of the Department of the Rhône

Commander of the Legion of Honor

HAVING REGARD TO

Law Number 76.663 of July 19, 1976 covering facilities classified for environmental protection; etc.

Decree Number 77.1133 of September 21, 1977 implementing the aforementioned law.

The declaration filed on October 19, 1983 by the Roussel Uclaf Company in order to regularize the administrative status of its activities performed in its Neuville-sur-Saône factory, 31 quai A. Barbès (referred to in numbers 3.1, 89.2, 253, 361 B2 of the nomenclature of Classified Facilities).

The prefectural authorization Orders of February 4, 1970, August 12, 1971, November 8, 1971, August 20, 1975, October 23, 1978 and January 7, 1981 delivered to the Roussel Uclaf Company.

The report of November 7, 1983 by the Regional Director of Industry and Research, the Inspector of Classified Facilities, stating that it appeared necessary to impose on the Roussel Uclaf Company additional provisions in order to update, complete and harmonize the provisions contained in the various authorization Orders already applying to the factory.

The report of November 24, 1983 by the Regional Director of Industry and Research stating that this prefectural order would be valid as a receipt for the declaration for the above-mentioned activities properly declared by the factory on October 19, 1983.

The Opinion of the Departmental Hygiene Council expressed at its meeting of November 24, 1983;

WHEREAS additional provisions need to be imposed on the Roussel Uclaf Company in accordance with the above-mentioned Article 18 of Decree Number 77.1133 of September 21, 1977.

At the proposal of the Secretary General of the Rhône:

HEREBY ORDERS

Article 1. The Roussel Uclaf Company is authorized, in the territory of the communes of Neuville-sur-Saône and Censy, to continue operating the following facilities in its factory:

Facility Number	Designation and Volume Activities	Headings of Nomenclature
Area 338	Combustion system able to consume in one hour a quantity of fuel representing 6,000 thermies in net calorific value (waste fluid incinerator) [one "thermie" equals 4.1855 x 10^6J]	133 bis
	Incineration of industrial waste (liquid effluents)	167
	Open-air storage of 50 m^3 of category 2 flammable liquids (domestic fuel)	253
Outside building 0440	Accumulator charging shop; useable power is 7.5 k [illegible]	3-1
Area 1000	Liquefied ammonia tank. A 41 ton tank	50.1
Area 1002	Open-air storage of 1400 m^3 of flammable category 1 and category 2 liquids	253
Area 1003	Open-air storage of 1400 m^3 of flammable category 1 and category 2 liquids	253

Rooms 1006 and 1207	Rooms 1006 and 1207. Heating process using fluids (up to 190 liters) as heat transmitter, composed of combustible organic substances used in a closed circuit. The utilization temperature is less than the flash point of the fluids.	120 II

Article Two

THE PROVISIONS OF THE PRESENT ARTICLE SHALL APPLY TO THE ENTIRE FACILITY

1. General

1.1. Accidents or Incidents:

- A written report on all accidents and incidents will be kept in a form suitable for each manufacturing unit.

- All accident or incidents that might injure the interests listed in Article 1 of the Law of July 19, 1976 shall be reported immediately to the Inspector of Classified Facilities. Except for properly justified exceptions, particularly for safety reasons, it is forbidden to modify the condition of the facilities where the accident or incident occurred in any way until the Inspector of Classified Facilities has given his agreement and, where applicable, the court has given its authorization.

- The person responsible for the facility shall take the necessary steps such that, under all circumstances and in particular when the facility is placed under the responsibility of an assigned manager, the Government or intervening outside departments have available to them technical assistance by the operator and have access to all documents and information available in the facility and useful for their intervention.

1.2. Tests and Analyses

Independently of the tests explicitly listed in the present Order, the Inspector of Classified Facilities may, if need

be, request specific tests, sampling, and analyses to be conducted by an organization whose choice will be submitted for his approval if it is not authorized for the purpose, in order to check compliance with the provisions of regulations on classified facilities; the costs generated by these studies will be paid by the operator.

2. NOISE AND VIBRATION

2.1. The facility will be built, equipped, and operated such that its operation cannot generate noise or vibrations likely to disturb the tranquility of the neighborhood.

2.2. Any disturbance will be evaluated under French Standard NF/S.31.010.

Disturbance shall be presumed when the evaluation level of environmental noise, determined according to § 7 of the Standard, exceeds the maximum noise level for the period considered.

2.2.1 Noise inside premises inhabited or occupied by third parties likely to be disturbed shall be measured according to § 6.2 of the Standard in cases where noise from the facility in question is transmitted principally through a solid medium.

2.2.2 Noises transmitted through the air to premises inhabited or occupied by third parties shall be measured outside the buildings containing these premises according to § 6.1 of the Standard.

2.3. Maximum Noise Levels (in dB(A))

The evaluation level generated by the facility must not exceed the thresholds listed in the table below:

	Day 7 am-8 pm	Intermed. Period 6 am-7 pm and 8 pm-10 pm, Sundays, Pub. Holidays	Night 10 pm
Inside buildings occupied or inhabited by third parties (measurements according to § 2.2.1)	35	30	30
At the property boundary of the facility	65	60	55

2.4. The reference period for calculation of the mean under § 7 of the Standard shall be eight hours for daytime and the noisiest half hour for intermediate periods and nighttime.

2.5. On-site vehicles and machinery used inside the facility shall conform to current regulations. In particular, machinery shall be of the type approved under the Decree of April 18, 1969, as amended.

2.6. The use of all acoustic communication devices (sirens, warning signals, loudspeakers, etc.) that disturb the neighborhood shall be forbidden unless used exceptionally and only to prevent or report serious incidents or accidents.

2.7. Fixed machinery likely to disturb the neighborhood by vibration shall be insulated by effective antidamping devices.

3. AIR POLLUTION

3.1. General

3.1.1. It is forbidden to emit into the air any smoke, fumes, soot, dust, or gas likely to disturb the neighborhood and injure public health or safety.

3.1.2. The shapes of the air evacuation pipes, particularly in the parts closest to the outlets, shall be designed such as to encourage the ascent or diffusion of the effluents ejected in normal factory operation, to the maximum degree.

3.2. Accidental Pollution

The necessary steps will be taken to reduce the probability of accidental emissions and for these emissions not to jeopardize personal health and safety. The design and location of safety devices intended to protect apparatus against internal overpressure must be such that this goal is met without thereby reducing its efficiency or reliability.

3.3. Combustion Facilities

3.3.1. Liquid coolant generators with power higher than 87 kW shall be subject to the provisions of the Order of June 20, 1975 covering the equipment and operation of heat installations in order to reduce air pollution and economize energy.

3.3.2. Other combustion facilities shall be subject to the provisions of the Instruction of November 24, 1970 relative to stack [chimney] construction.

3.3.3. The sulfur content of the fuels used shall always be less than 2%.

3.4. Dust Emissions

3.4.1. Stacks emitting fine dust shall be built and operated according to the provisions of the Ministerial Instruction of August 13, 1971.

3.4.2. Channeled gaseous effluents shall not contain more than 50 mg/m^3 of dust upon emission into the atmosphere.

3.4.3. Steps shall be taken to limit specific diffuse emissions (shelters, capping, sprinkling, etc.).

3.5. Weather Station:

The wind speed and direction at the factory site shall be measured and recorded continuously and records kept for one month.

3.6. Devices Indicating Wind Direction:

Devices visible day and night indicating the local wind direction shall be erected near facilities that may emit hazardous substances in the event of abnormal operation.

3.7. Emission Testing:

In normal operating periods, upon request of the Inspector of Classified Facilities, measurements of the concentrations or flowrates of emitted pollutants shall be made, possibly by a specialized organization.

3.8. Environmental Testing:

On request of the Inspector of Classified Facilities, and according to the methods defined thereby, measurement programs in the environment shall be carried out to test for the effects of pollutants that may be emitted by the facilities.

4. WATER POLLUTION:

4.1. Water Sampling:

4.1.1. The use of underground water for industrial purposes, particularly of water whose quality allows for domestic use, must be limited for example by closed cooling circuits or air-to-air cooling towers.

4.1.2. The operator shall report the water consumption and plans for reduction to the Inspector of Classified Facilities, annually.

4.2. Various Types of Liquid Effluent:

Liquid effluents from the facility include:

- residue and tars that can be incinerated by the operator or a specialized organization, collected in the facilities generating them.

- Effluents treated in the specialized biological purification station for waste water designated herein "purification station." The effluents from this station will be discharged to the left bank of the Saône River at PK [kilometer point] 21.820.

- The other effluents discharged directly into the Saône at PK 21.180 on the left bank. These effluents will be designated by the terms "direct discharge" in the present Order.

4.3. Collection of Liquid Effluents:

4.3.1. Every effort shall be made to isolate the various effluents from each installation in a concentrated a form as possible to facilitate their treatment.

4.3.2. After examination of the technical and economic study, the Inspector of Classified Facilities may require treatment or destruction of a given effluent when its concentration or the nature of its pollutants justify and permit.

4.3.3. The collection system for effluents to undergo treatment or to be destroyed shall not, in a normal operating period, include links allowing direct discharge into the natural environment or sewers outside the facility.

4.3.4. Sewers must be watertight and their layout must allow for purification. Their size and the materials used to build them must give them a long service life. When this condition cannot be met by reason of the characteristics of the products transported, it must be possible to inspect or explore them by some other means. Sewer tests will be written up in reports kept available for the Inspector of Classified Facilities.

4.3.5. Sewers carrying water polluted by flammable or potentially flammable liquids must include effective protection against flame propagation.

4.3.6. The discharge devices must be easily accessible and designed for effluent testing and flowrate measurement under the best possible accuracy conditions.

4.3.7. A sewer system diagram showing the sectors collected, inspection points, and branch points will be drawn, regularly updated, and held available for the Inspector of Classified Facilities.

4.4. Quantity of Water Discharged:

4.4.1. The daily rate of discharge of polluted water into the natural environment is limited to 32,000 m^3 for direct discharge and 4,300 m^3 for discharge from the purification station.

4.4.2. Except for accidents where the safety of persons or facilities is compromised, it is forbidden to reduce the concentration of polluting substances discharged directly merely by diluting the liquid, except for dilution resulting from collecting normal effluents from the factory or those requiring purification.

4.5. Quality of Discharged Effluents:

4.5.1. The effluents must be free of:

- floating material
- substances able, in the sewer or natural environment, to give off toxic of flammable gases or vapors directly or indirectly after mixing with other effluents.
- all substances capable of damaging structures as well as depositable or precipitable materials which, after mixing with other effluents, might directly or

indirectly hinder the proper operation of the structures.

. substances capable of destroying fish downstream of the discharge point.

Moreover, they must not cause noticeable discoloration of the receiving medium.

Their pH must be between 5.5 and 8.5 and their temperature less than 30°C.

4.5.2. The characteristics of the waste water discharged, in particular the mean concentration over two hours, the daily concentration, and the daily flow of each of the principal pollutants shall be less than or equal to the values listed in the tables in the Appendix to the present Order, and according to a fixed schedule.

4.6. Waste Water Testing:

4.6.1. The following shall be continuously measured and recorded for each previously homogenized effluent:

Purification Station Discharge	Direct Discharge
. pH	. pH
. Temperature	. Temperature
. Flowrate	. Flowrate
. COD	

The printed, time-stamped strips will be kept for one year and held available for the Inspector of Classified Facilities.

4.6.2. Proportional sampling of the discharge flowrate will be done continuously for each of the homogenized effluents.

- Every 24-hour period, a sample of at least two liters will be taken representing the average characteristics of the effluent discharged in this period. This sample will be kept at 4°C for seven days, available to the Inspector of Classified Facilities, in a closed container marked with the sample references.

For a sample representative of the characteristics of the effluent discharged in the previous 24 hours, the operator will measure or give:

. every day:

For Biological Discharge	For Direct Discharge
pH	pH
COD	COD
BOD5	Copper
Ammonia nitrogen NH4+	Ammonia nitrogen NH4+

. once a week

For Biological Discharge	For Direct Discharge
Kjeldhal nitrogen	BOD5
	Kjeldhal nitrogen

4.6.3. For application of paragraphs 4.6.1. and 4.6.2., provided the Inspector of Classified Facilities agrees, continuous monitoring of the chemical oxygen demand of the effluent may be replaced by that of a parameter representing oxidizable pollution (total oxygen demand for example). In

this case, the Inspector of Classified Facilities will establish the corresponding values authorized for this parameter.

4.6.4. Every three months, while the factory is operating, the operator will analyze representative samples of the average characteristics of the discharged effluent. The analysis will normally cover all the parameters listed in the appendix to the present Order and will be conducted by an organization whose name will be submitted to the Inspector of Classified Facilities if it is not authorized for the purpose.

For application of this provision, the Inspector of Classified Facilities will establish:

- the number of samples, which shall not exceed twelve

- sampling time

If the results are probative, he may reduce the frequency of analyses or limit them to testing the most characteristic elements in the pollution created by the factory.

4.6.5. If there is substantial pollution of the receiving medium, the Inspector of Classified Facilities may request special analyses of the discharges to be made in shorter periods of time, possibly under the control of an independent organization.

4.6.6. Balances

A summary report on the analyses and measurements carried out pursuant to this Section 4.6 will be sent every month to the Inspector of Classified Facilities with the format and timing defined thereby. A copy will be sent to the relevant department of the Water Police.

At the beginning of every year, the operator will file with the Inspector of Classified Facilities, a list of actions taken, and projects and studies underway to reduce total nitrogen and ammonia nitrogen discharges.

4.7. Prevention of Accidental Pollution:

Every effort will be made so that, in the event of an operating incident within the factory (breakage of container, exchanger leakage, etc.) there will be no direct spill of dangerous or unwholesome materials into the natural environment, the nature and quality of which are likely to impact this environment. In particular, the following structural and operating provisions must be met.

4.7.1. Holding Capacities:

The units, parts of units, or storages that may, even occasionally, contain a product which, by reason of its characteristics and quantities employed, may adversely affect the environment upon a direct discharge, shall be equipped with holding capacities or designed to send accidentally spilled products to a facility that will hold and treat them (pretreatment station for example).

When the respective properties of the hazardous products and those of the extinction or cooling agents

permit, steps will be taken so that utilization of the protection means will not cause any significant spill of these hazardous substances into the natural environment.

The holding capacities and collection and storage system for runoff and accidental effluents will not include any gravity emptying device into the sewer that drains into the natural environment.

Loading areas, intermediate storage areas, and filling areas for movable containers of hazardous or unwholesome materials such as drums, containers, and road or rail tank trucks shall meet the above provisions.

4.7.2. Circulation of Hazardous or Unwholesome Products Within the Factory:

Pipes carrying hazardous or unwholesome fluids inside the factory must be kept perfectly fluid-tight. The materials from which they are made and their dimensions must be such as to preserve the structures. When this condition cannot be met by reason of the characteristics of the fluids carried, they must be inspectable from outside. Periodic inspections will be written up in a report kept available for the Inspector of Classified Facilities for one year.

In no case may pipes for hazardous or unwholesome products be located in the sewers or in pipes connecting directly with the sewers.

4.7.3. Condition of Storage Facilities:

The condition of fixed or movable storage facilities for hazardous or unwholesome products and

equipment therefor located in the factory or entering it temporarily must be particularly monitored by the operator.

4.7.4. Collection of Process Water That Could be Polluted Accidently:

- Process water that could be polluted accidently or cause the thresholds set in paragraph 4.5 above to be exceeded must go through a buffer zone so that it can be tested before discharge.

- In sections particularly exposed to the risk of accidental pollution, appropriate liquid effluent monitoring means will be installed.

- Causes for any abnormal change in the characteristics of the effluents will be the subject of systematic analysis in order to verify that they do not constitute an anomaly that could lead to accidental pollution.

4.7.5. Cooling Water:

Cooling water in open circuit or deconcentration drains from closed circuits, and coming from cooling circuits supplying exchangers and units in which (even occasionally) hazardous or unwholesome products circulate at pressures greater than the water circuits, may not be discharged until a check has been made to ensure that it has not been accidently polluted.

4.8. Consequences of Accidental Pollution:

4.8.1. Pollution of Surface Water:

In the case of accidental pollution caused by the factory, the operator must be able to furnish, in a very short time, the known information he has that allows steps

to be taken to safeguard human beings, animals, flora, and structures exposed to this pollution, in particular:

1. Toxicity and effects of discharged products;
2. Changes in these products and dispersion conditions in the natural environment;
3. Definition of zones that may be affected by pollutant concentrations that may involve impacts on the natural environment or various water uses;
4. Methods of pollutant destruction to be employed;
5. Healing methods that could be used to treat humans, animals, or plants exposed to this pollution.
6. Methods of analysis or identification and organizations capable of performing these analyses.

All the steps taken and the bibliographic data gathered by the operator to meet the above requirements will be embodied in a surface water pollution control file held available for the Inspector of Classified Facilities and regularly updated with changes in knowledge and techniques.

This file will include in particular:

- the information specified in points 1, 2, 4, 5, and 6 above for products (used or manufactured in the factory, including intermediates) which, by reason of their characteristics and the quantities employed, may harm the environment if discharged directly;

- a report setting out the methodology and technical means employed to respond rapidly to an environmental catastrophe by meeting the provisions of Point 3 above. Diffusion tests, actual-size or on models, conducted by an independent specialized organization must support the basic hypotheses of this study.

4.8.2 Underground Water Pollution

The quality of the underground water that could be polluted by the factory will be monitored, particularly with a view to detecting accidental spills. This water will be sampled and analyzed at least twice a year.

The practical modalities of this monitoring will be defined in instructions submitted to the Inspector of Classified Facilities for approval.

In the case of pollution of underground water by the operator, every effort will be made to put a stop to the source of the trouble.

4.9. Operating Instructions:

Operating instructions for the units, storages, or miscellaneous equipment that could cause accidental water pollution must explicitly include the tests to be made in normal operation following a shutdown after modification or maintenance work in order to check that the facilities continue to meet the requirements of the present Order.

For the tests to be made after maintenance work or a prolonged shutdown, performance of each test will be confirmed by signing a special sheet that logs the steps by which the facilities are put back in service (worksheet for example).

5. DISCHARGES:

5.1. General:

The operator will write instructions governing the collection and elimination of the various discharges generated by the factory in accordance with current legislation and regulations (law or July 15, 1975 and implementation texts) as well as the provisions of the present Order.

5.2. Storage -- Discharge Yard:

A discharge yard will be set up in the factory, the layout and operation of which must meet the following requirements:

1. All precautions will be taken to see that:

   - the discharges do not disturb the neighborhood (odor, etc.) or pollute the surface or underground water, or pollute the ground.

   - mixtures of discharges cannot cause uncontrolled reactions that would in particular lead to emission of toxic gases or aerosols or formation of explosive products.

2. The discharges may be packed in packing materials in good condition that had been used to contain other products (raw materials for example) provided:

- there can be no dangerous reactions between the discharge and the products formerly contained in the packaging.

- the packages are identified only by information concerning the discharge.

5.3. Identification of Special Industrial Discharges:

Special industrial discharges as defined by Decree Number 77.974 of August 19, 1977 produced by the factory will be noted on identification sheets, one per type of discharge. The sheet will state in particular the classification of the discharge according to the nomenclature of the country concerned, identification information, and all information useful for its elimination according to the provisions of the law of July 15, 1975 and its implementation texts.

This sheet will be sent to the eliminator and a copy will be kept available for the Inspector of Classified Facilities.

5.4. Elimination:

- No type of discharge may be incinerated in the open air. Exceptions may be made for discharges not soiled by harmful or toxic substances (paper, pallets, etc.) when these are used as fuels in "firefighting exercises".

- Elimination of discharges outside the factory and its annexes must be conducted by a specialized company.

5.5. Testing:

- For each removal, the following minimum information must be entered on a document of suitable format (log, removal sheet, etc.) and kept for at least five years:

  . nature and composition of discharge (giving the national nomenclature number of the discharge);

  . quantity removed;

  . date removed;

  . name of pickup company and registration plate of vehicle used;

  . destination of discharge (eliminator);

  . nature of elimination effected.

- Production of waste in the factory, its evaluation, and its elimination (including elimination inside the factory) will be entered on a periodic report sent to the Inspector of Classified Facilities with the format and timing defined thereby.

APPENDIX 1.1

DIRECT DISCHARGE

LIMIT VALUES OF CONCENTRATIONS IN MILLIGRAMS PER LITER

	MEAN CONCENTRATION CALCULATED FOR ONE WEEK			
POLLUTANT	Immediately	Starting 1/1/85	Starting 1/1/86	Starting 1/1/87
COD	190	150	115	75
BOD	40	35	25	
MES	30			
Kjeldhal nitrogen	140			
Ammonia nitrogen	130			
Hydrocarbons (French Std. NFT 90203)	10			
Phenol compounds	0.3			
Cyanides	0.1			
Total chromium	0.7			
Zinc	0.3			
Nickel	0.2			
Copper	5	0.2		

The mean concentrations in a period of two hours must not be greater than forty percent of the above values.

LIMIT VALUES OF DISCHARGE FLOWS IN KILOGRAMS PER DAY

	MEAN DAILY FLOW CALCULATED FOR ONE WEEK			
POLLUTANT	Immediately	Starting 1/1/85	Starting 1/1/86	Starting 1/1/87
COD	5,000	2,850	2,150	1,450
BOD	1,050	650	470	320
MES	300			
Kjeldhal nitrogen	3,600			
Ammonia nitrogen	3,400			
Copper	130	5		

The mean flows over a period of two hours must not exceed eleven percent of their mean daily value established above.

Appendix 1.1. (Cont.)

PERIODIC TESTS AND ANALYSES

- Effluents for which a maximum concentration has been established.

- Hydrocarbons (Standard 90114)
  anionic detergents
  chloroform-extractable substances
  nitrites, nitrates, phosphates, sulfates
  chlorides, sodium, potassium
  manganese, calcium, cadmium, mercury,
  aluminum, tin,
  lead, arsenic, iron, magnesium

- Daphnia toxicity test.

- Conductivity

APPENDIX 1.2

PURIFICATION STATION DISCHARGE

MAXIMUM CONCENTRATIONS IN MILLIGRAMS PER LITER

Pollutant	Mean Concentration Calculated Over One Week
COD	650
BOD	240
MES	75
Kjeldhal nitrogen	240
Ammonia nitrogen	220
Phenol Compounds	0.1
Cyanides	0.1
Copper	0.2
Zinc	0.4
Hydrocarbons NFT 90203	10

The mean concentrations over two hours should not be higher than 90% of the above values.

MAXIMUM VALUES FOR DISCHARGE FLOWS IN KILOGRAMS PER DAY

Pollutant	Mean Daily Flow Calculated Over One Week
COD	1,600
BOD	600
MES	200
Kjeldhal nitrogen	600
Ammonia nitrogen	550
Copper	0.5
Zinc	1

The mean flows over two hours should not exceed 16% of their mean daily value established above.

Appendix 1.2. (Cont.)

PERIODIC TESTS AND ANALYSES

- Effluents for which a maximum concentration has been established.
- Hydrocarbons (Standards 90202 and 90114)
  anionic detergents
  substances extractable with chloroform,
  nitrites, nitrates, phosphates, sulfates,
  manganese, calcium, cadmium, mercury,
  aluminum, tin, lead, arsenic, iron,
  magnesium, total chrome, nickel
- Daphnia toxicity test
- Conductivity

Article 3: Pursuant to Article 27 of Decree Number 77.1133 of September 21, 1977 implementing the law of July 19, 1976, the present Order shall be posted at the Neuville-sur-Saône Town Hall for a minimum of one month with a statement that third parties may read the regulations in the Town Hall or at the Rhône Prefecture, General Administration Department, third office. The mayor shall write a report to the effect that this formality has been complied with.

Article 4: If the operating company fails to abide by the above provisions, the administrative and criminal penalties provided by the aforementioned Law of July 19, 1976 shall be applied.

Article 5: The Secretary General of the Rhône and the Regional Director of Industry and Research, the Inspector of Classified Facilities, shall each, as far as he is responsible, oversee enforcement of the present Order. Copies thereof shall be sent to:

- the Mayor of Neuville-sur-Saône who shall post as described in Article 3 above at:

- the Neuville-sur-Saône Town Council;

- the Genay Town Council;

- the Roussel Uclaf Company, through administrative channels

Lyon, December 21, 1983
True Copy
Head of Office
[signature]

THE PREFECT

For the Prefect,
Commissioner of the Republic,
Secretary General,
Michel Festy

ARRETE DE CLASSEMENT

délivré par

LE PREFET, COMMISSAIRE DE LA REPUBLIQUE

DU DEPARTEMENT DU RHONE

en date du 7 Août 1990

15

PRÉFECTURE DU RHÔNE

DIRECTION
DE L'ADMINISTRATION GÉNÉRALE

3e Bureau
Environnement - Etablissements Classés

Affaire suivie par Mme Leclerc/PC
Poste 6151

RÉPUBLIQUE FRANÇAISE

000251

Lyon, le - 7 AOUT 1990

A R R E T E
autorisant la société ROUSSEL UCLAF
à aménager un centre d'industrialisation des procédés
dans l'enceinte de son établissement situé
31, quai Armand Barbès à Neuville-sur-Saône.

-=-

Le Préfet de la Région Rhône-Alpes
Préfet du Rhône,

Officier de la Légion d'Honneur,

VU la loi n° 64.1245 du 16 décembre 1964 modifiée relative au régime et à la répartition des eaux et à la lutte contre leur pollution ;

VU la loi n° 76.663 du 19 juillet 1976 modifiée relative aux installations classées pour la protection de l'environnement ;

VU le décret n° 77.1133 du 21 septembre 1977 modifié pris pour l'application des lois susvisées ;

*

* *

VU l'arrêté préfectoral du 21 décembre 1983 régissant le fonctionnement des activités de la société ROUSSEL UCLAF dans l'enceinte de son usine située 31 quai Armand Barbès à Neuville sur Saône ;

VU la demande présentée le 15 juin 1989, complétée les 17 et 24 novembre 1989 par la société ROUSSEL UCLAF en vue d'être autorisée à aménager un centre d'industrialisation des procédés dans l'enceinte de son établissement situé 31 quai Armand Barbès à Neuville sur Saône ;

VU l'avis en date du 30 janvier 1990 de l'hydrogéologue officiel ;

VU l'avis en date du 12 février 1990 de la direction départementale du travail et de l'emploi ;

VU l'avis en date du 26 février 1990 de la direction départementale des affaires sanitaires et sociales ;

VU l'avis en date du 6 mars 1990 du service interministériel de défense et de la protection civile ;

VU l'avis en date du 9 mars 1990 de la direction départementale de l'équipement ;

VU l'avis en date du 21 mars 1990 de la direction départementale de l'agriculture et de la forêt ;

VU l'avis en date du 17 avril 1990 de la direction départementale des services d'incendie et de secours ;

VU l'avis en date du 10 mai 1990 du service de la navigation Rhône-Saône ;

VU l'avis en date du 30 juillet 1990 du ministère de l'agriculture et de la forêt ;

* * *

VU le rapport de synthèse du 28 mai 1990 de la direction régionale de l'industrie et de la recherche, service chargé de l'inspection des installations classées ;

VU l'avis du conseil départemental d'hygiène exprimé sans sa séance du 21 juin 1990 ;

VU l'arrêté préfectoral du 22 juin 1990 prorogeant le délai d'instruction de la demande ;

CONSIDERANT que les intérêts mentionnés à l'article 1er des lois n° 64.1245 du 16 décembre 1964 et n° 76.663 du 19 juillet 1976 susvisées sont garantis par l'exécution des prescriptions spécifiées par le présent arrêté ;

SUR la proposition du secrétaire général de la préfecture,

Arrête :

ARTICLE 1er

1) - La Sté ROUSSEL-UCLAF S.A. est autorisée à implanter dans l'enceinte de son usine, située 31 quai A. Barbès à NEUVILLE/ SAONE, un Centre d'Industrialisation des Procédés (C.I.P.) comprenant des unités pilotes et des laboratoires annexes liés au "Développement Chimique".

2) - Cette autorisation est accordée aux conditions précisées lors de la demande faite le 15 juin 1989, complétée les 17 et 24 novembre 1989, sous réserve du respect des prescriptions de l'arrêté du 21 décembre 1983 modifié, actualisé par le présent arrêté.

3) - Les prescriptions du présent arrêté s'appliquent aux installations précédemment autorisées ou déclarées demeurant en activité ainsi qu'à celles qui ont fait l'objet de la demande présentée le 15 juin 1989.

ARTICLE 2

La liste des installations classées mentionnées dans le tableau de l'article 1er de l'arrêté du 21 décembre 1983 modifié (zones d'application définies par référence au plan joint en annexe du présent arrêté) est complétée comme ci-après :

Secteur C.I.P. : Centre d'Industrialisation des Procédés			
REFERENCE DES INSTALLATIONS	DESIGNATION DES ACTIVITES	QUANTITES PREVUES	RUBRIQUE DE NOMENCLATURE
A.5001/B.8200	Stock./util. de l'acide chlorhydrique anhydre liquéfié (en capacités unitaires < ou = à 30kg).	250 kg	16 bis 2 b
A.5001	Dépôt d'amines combustibles liquéfiées (capacités unitaires > 50 kg)	200 kg	48 bis 1 b
B.8200	Ateliers où l'on emploie des amines combustibles liquéfiées.	100 kg	48 ter B 1
	Ets renfermant des annimaux/ êtres vivants (Mise en oeuvre de procédés biochimiques).	--	58 - 11
A.5001/B.8200	Dépôts/ Empl. de bromure de méthyle	730 kg	88 - 1

ARTICLE 3

L'article 2 de l'arrêté du 21 décembre 1983 modifié est complété par un paragraphe 9 incluant les dispositions suivantes :

"9 - PRESCRIPTIONS PARTICULIERES APPLICABLES AU C.I.P. :

Le Centre d'Industrialisation des Procédés (C.I.P.) devra exercer ses activités en respectant les prescriptions qui suivent ainsi que celles non contraires de l'arrêté du 21 décembre 1983 modifié réglementant l'ensemble des activités de l'usine de Neuville/ Saône.

9.1 - Implantation du C.I.P. :

9.1.1 - Les activités visées dans la demande du 15.06.89 seront exercées dans les bâtiments ou sur les aires qui suivent :

Bâtiment 8100 : Annexe technique (extérieur Bt 8200).

Bâtiment 8200 : Bâtiment "Unité Pilote" ou seront étudiés les produits, procédés ou matériels et comprenant 6 modules de 250 m² (4 ateliers indépendants, un hall des procédés pouvant accueillir tout montage pilote et des locaux techniques et d'exploitation).

Aire 8001 : Dépôt aérien principal réservé au stockage des matières premières reçues par l'usine (liquides et gaz stockés en citernes, conteneurs, fûts, sphères ou bouteilles).

Aire 8001 : Aire extérieure associée au bt 8100.

9.1.2 - L'implantation, la conception, le contrôle de la qualité de réalisation, la conduite et l'entretien des unités mettant en oeuvre ces activités seront effectués de façon à garantir :

* Que les risques induits entre les différentes unités de ce secteur (effet domino en situation accidentelle) ne soient en aucun cas augmentés de façon significative,
* Qu'une éventuelle explosion n'engendre pas en limite de propriété une surpression supérieure à 0,05 bars.
* Qu'en situation accidentelle, la teneur en gaz ou vapeurs toxiques rejetés à l'atmosphère soit constamment inférieure à la valeur qui entraînerait sur les populations riveraines des atteintes irréversibles à leur santé.

9.2 - Conception des installations :

9.2.1 - Le bâtiment "unités pilotes" sera construit en matériaux incombustibles et résistants au feu. Les murs séparant chaque atelier auront une résistance au feu supérieure à 2 heures, les portes de communication (coupe feu 1/2 heure) seront munies de système de rappel automatique de fermeture (type BLOOM, etc.). La salle de contrôle centrale et les locaux techniques seront équipés de sas.

Les éléments porteurs des structures métalliques devront être protégés de la chaleur si leur destruction est susceptible, lors d'un incendie, d'entraîner une extension anormale du sinistre ou de compromettre les conditions d'intervention.

Des moyens propres de lutte contre l'incendie adaptés aux risques à défendre seront disposés à proximité immédiate et à l'intérieur du bâtiment.

ARTICLE 4

Le paragraphe 7 de l'article 2 de l'arrêté du 21 décembre 1983 modifié est complété comme ci-dessous :

"7.2 - Prescriptions applicables aux appareils contenant des polychlorobiphényles ou des polychloroterphényles (P.C.B./ P.C.T.) :

7.2.1 - Les tranformateurs électriques seront implantés sur des dispositifs de rétention étanches, sans communication avec le sol ou les égouts et dont les volumes utiles seront supérieurs ou égaux à la plus grande des valeurs suivantes :

- 100 % de la capacité du plus gros contenant
- 50 % du volume total de P.C.B. présent.

7.2.2 - L'exploitant procèdera à la vérification périodique visuelle au moins tous les 3 ans de l'étanchéité ou de l'absence de fuite sur les tranformateurs et dispositifs de rétention.

7.2.3 - Les locaux renfermant les transformateurs ne comporteront pas de potentiel calorifique susceptible d'alimenter un incendie important et seront équipés de moyens de prévention et de protection incendie appropriés.

7.2.4 - Ces locaux seront séparés de toute accumulation de matières combustibles par un mur coupe-feu de degré 2 heures, ou un espace libre d'au moins 8 mètres. Les dispositifs de communication avec d'autres locaux doivent être coupe-feu 1 heure.

7.2.5 - Des mesures préventives appropriées devront être prises afin de limiter la probabilité et les conséquences d'accidents conduisant à la diffusion de substances toxiques. Les transformateurs ainsi que les autres matériels électriques présents dans les locaux et/ ou contenant du P.C.B. seront en particulier :

- Conformes aux normes en vigueur au moment de leur installation,

- Equipés de système de protection individuelle contre les échauffements internes (comme par exemple : protection primaire par fusibles calibrés en fonction de la puissance - mise hors tension immédiate en cas de surpression, de détection de bulles gazeuses ou de baisse de niveau de diélectrique).

Ces systèmes seront concus pour éviter tout réenclenchement automatique et des consignes seront établies pour en empêcher le réenclenchement manuel avant analyse du défaut.

7.2.6. Les déchets souillés de P.C.B. provenant de l'exploitation (entretien, remplissage, nettoyage, etc.) seront stockés puis éliminés dans des conditions compatibles avec la protection de l'environnement et dans des installations régulièrement autorisées à cet effet. L'exploitant sera en mesure d'en justifier à tout moment.

Les déchets contenant plus de 100 ppm seront éliminés dans une installation autorisée assurant la destruction des molécules P.C.. Pour les déchets dont la teneur est comprise entre 10 et 100 ppm, l'exploitant justifiera les filières d'élimination prévues (transfert vers une décharge pour déchets industriels, confinement, etc.).

7.2.7. Lors de travaux d'entretien courants ou de réparation sur place (manipulation d'appareils contenant des P.C.B., etc.), l'exploitant prendra les dispositions nécessaires à la prévention des risques de pollution ou de nuisance liés à ces opérations.

Seront notamment évités les écoulements de P.C.B. (débordement, rupture de flexible, etc.), toute surchauffe du matériel ou du diélectrique ainsi que le contact du PCB avec une flamme.

Une signalisation adéquate sera mise en place pendant la durée des opérations qui seront réalisées sur une surface étanche (en rajoutant une bâche au besoin, etc.).

Le matériel utilisé, compatible avec les PCB, ne devra pas être susceptible de provoquer un accident (camion non protégé électriquement, choc lors d'une manoeuvre, flexible en mauvais état, etc.).

7.2.8. En cas de travaux de démantèlement, de mise au rebut l'exploitant préviendra l'inspecteur des installations classées en précisant si nécessaire, la destination finale des PCB ou PCT et des substances souillées. L'exploitant demandera et archivera les justificatifs de leur élimination ou de leur régénération, dans une installation régulièrement autorisée et agréée à cet effet.

7.2.9. Tout matériel imprégné de PCB ne pourra être destiné au ferraillage qu'après avoir été décontaminé par un procédé permettant d'obtenir une décontamination durable à moins de 100 ppm en masse de l'objet. De même, la réutilisation d'un matériel usagé aux PCB pour qu'il ne soit plus considéré au PCB (changement du diélectrique, etc.) ne pourra être effectuée qu'après une décontamination durable à moins de 100 ppm en masse de l'objet.

La mise en décharge ou le brûlage simple sont interdits."

ARTICLE 5

Le paragraphe 7 ("PRESCRIPTIONS PARTICULIERES") de l'art. 2 de l'arrêté du 21 décembre 1983 modifié est complété comme ci-dessous :

"7.3 - <u>Prescriptions applicables au bassin de confinement des eaux polluées</u> :

7.3.1 - Des vannes de barrage seront mises en place sur toutes les canalisations de rejet direct d'effluents en Saône (égouts "eaux propres").

7.3.2 - Le réseau général usine des eaux rejetées en Saône sera équipé d'une station de relevage permettant, en situation accidentelle et pendant une durée déterminée, de stopper tous les écoulements de surface (eaux polluées, eaux incendie, etc.) en les détournant sur des bassins de stockage.

7.3.3 - La conception, le nombre et le dimensionnement des ouvrages et matériels constituant les dispositifs de barrage, le réseau de collecte, les stations de relevage et les bassins de confinement des "eaux polluées" devront notamment tenir compte :

- Des quantités et débits d'eaux (eaux d'extinction et de refroidissement/ protection, etc.) nécessaires pour la lutte contre l'incendie le plus important envisageable et de celles apportées par les installations maintenues en fonctionnement ou mises en sécurité. Les justifications de ce dimensionnement seront transmises à l'Inspecteur des Installations Classées.

- De l'obligation de collecter tous les écoulements pollués..

- Des caractéristiques des effluents (température, corrosivité, présence de corps ou de particules solides, etc.).

- De la présence éventuelle de matériaux solides susceptibles d'entraver les écoulements ou le fonctionnment des matériels.

- Des dispositions à prendre pour éviter le risque de propagation du feu par des écoulements enflammés.

7.3.4 - En tout état de cause, les bassins de stockage auront un volume global minimum de 4 000 m³ pour assurer au moins 4 heures d'autonomie au débit normal des rejets (ou 3 h pour des eaux d'extinction éventuelles). La station de relevage aura une capacité minimum de 1 500 m³/h et sera équipée d'au moins 2 groupes de pompage entièrement indépendant, y compris en ce qui concerne la source et l'alimentation en énergie nécessaire à leur fonctionnement.

7.3.5 - Les bassins de stockage seront protégés contre l'action corrosive des agents atmosphériques et des effluents.

7.3.6 - L'ensemble du dispositif de collecte et de rétention sera régulièrement entretenu, contrôlé et testé (dispositifs de barrage et stations de relevage en particulier).

La fréquence et les modalités d'entretien, d'essais et de contrôles feront l'objet de consignes écrites portées à la connaissance du personnel concerné. Les résultats des essais et des contrôles seront consignés sur un support adapté.

7.3.7 - La mise en oeuvre de l'ensemble du dispositif et la surveillance de son bon fonctionnement lors de son utilisation feront l'objet de consignes écrites portées à la connaissance du personnel concerné.

7.3.8 - Une desserte de 2,5 m autour des bassins sera aménagée de façon à pouvoir permettre une intervention ou acheminer les moyens nécessaires à leur couverture (mousse, etc.) pour prévenir une pollution atmosphérique éventuelle par les produits contenus.

7.3.9 - Les effluents issus des bassins de confinement seront obligatoirement analysés avant d'être orientés selon le cas en Saône ou sur la station d'épuration de l'usine.

7.3.10 - Les égouts reliant l'établissement à la voirie communale (route de Trévoux) seront supprimés et le magasin 8100 traité en cuvette de rétention."

ARTICLE 6

Le 4ème alinéa du paragraphe 6.4.3 ("matériel de lutte contre l'incendie") de l'article 2 de l'arrêté du 21 décembre 1983 modifié est actualisé comme ci-dessous :

"- de matériel d'intervention mobile de grande puissance : un fourgon pompe tonne 3 000 l avec production de mousse (500 l d'émulseur). un camion mixte (400 kg de poudre et 2 000 l d'émulseur). un camion poudre 2 300 kg. une réserve de 800 l d'émulseur en conteneurs mobiles. etc."

ARTICLE 7

Le paragraphe 3.3.3 ("teneur en soufre des combustibles") de l'article 2 de l'arrêté du 21 décembre 1983 modifié est actualisé comme ci-dessous :

"3.3.3 - La teneur en soufre des combustibles utilisés devra être en permanence inférieure à 1 %."

ARTICLE 8

Le paragraphe 4.7 de l'article 2 de l'arrêté du 17 mai 1985 modifié est complété comme ci-dessous :

"4.7.6 - <u>Différenciation des réseaux eaux de ville et eaux industrielles</u> :

4.7.6.1 - Un ou plusieurs dispositifs de protection (réservoirs de coupure. appareils de disconnection. etc.) seront installés pour isoler les réseaux d'eaux industrielles et éviter tout retour d'eau polluée ou non dans le réseau public d'eau potable.

4.7.6.2 - Les dispositifs utilisés. adaptés aux caractéristiques des réseaux à équiper, devront avoir fait l'objet d'essais technologiques favorables.

4.7.6.3 - Accessibles en permanence et installés à l'abri de toute possibilité d'immersion. ces dispositifs seront maintenus en bon état de fonctionnement et périodiquement vérifiés. Des rapports écrits seront tenus à la disposition de l'Inspection des Installations Classées.

4.7.6.4 - Les dispositifs susceptibles de déborder seront implantés de façon à ne pas diluer les effluents en cas de disfonctionnement.

4.7.6.5 - L'exploitant établira et tiendra à jour les plans et schémas de ces dispositifs et du réseau d'eau potable."

Article 9.- Le paragraphe 8 ("AUTRES DISPOSITIONS") de l'article 2 de l'arrêté du 21 décembre 1983 modifié est complété comme ci-dessous :

"8.11 - Les bassins de stockage des eaux polluées et les installations ou aménagements annexes prévus à l'article 7.3 précédent devront être opérationnels pour le 31 décembre 1990 au plus tard".

Article 10.- Un plan au 1/2.500ème actualisé est joint en annexe pour préciser l'implantation géographique des différentes zones concernées par les dispositions du présent arrêté.

Article 11.- Un extrait du présent arrêté, énumérant les prescriptions susvisées auxquelles l'installation est soumise, sera affiché en permanence de façon visible dans l'établissement par les soins de l'exploitant.

Article 12.- L'exploitant devra se conformer aux prescriptions du Titre III du Livre II du Code du Travail ainsi qu'aux textes réglementaires pris en son application.

Article 13.- Toute modification apportée par le demandeur à l'installation, à son mode d'utilisation ou à son voisinage et de nature à entraîner un changement notable des éléments du dossier de demande d'autorisation, doit être portée, avant sa réalisation, à la connaissance du préfet avec tous les éléments d'appréciation.

Article 14. - Tout transfert d'une installation classée sur un autre emplacement nécessite une nouvelle demande d'autorisation ou une nouvelle déclaration.

Dans le cas où l'installation changerait d'exploitant, le nouvel exploitant ou son représentant devra en faire la déclaration au préfet dans le mois qui suit la prise en charge de l'exploitation.

Article 15.- L'arrêté d'autorisation cesse de produire effet lorsque l'installation classée n'a pas été mise en service dans le délai de trois ans ou n'a pas été exploitée durant deux années consécutives, sauf le cas de force majeure.

Article 16.- L'exploitant sera tenu de déclarer, dans les meilleurs délais, à l'inspection des installations classées, les accidents ou incidents survenus du fait du fonctionnement de cette installation qui sont de nature à porter atteinte soit à la commodité du voisinage, soit à la santé, la sécurité, la salubrité publiques, soit à l'agriculture, soit à la protection de la nature et de l'environnement, soit à la conservation des sites et des monuments.

Article 17.- L'exploitant devra se conformer aux lois et règlements intervenus ou à intervenir sur les installations classées et exécuter dans les délais prescrits toute mesure qui lui serait ultérieurement imposée dans l'intérêt de la sécurité et de la salubrité publiques ou pour faire cesser des inconvénients préjudiciables au voisinage.

Article 18.- Conformément aux dispositions réglementaires en vigueur, un extrait du présent arrêté, énumérant les conditions auxquelles l'autorisation est accordée, sera affiché à la mairie pendant une durée minimum d'un mois avec mention de la possibilité pour les tiers de consulter sur place, ou à la préfecture du Rhône (direction de l'administration générale - 3ème bureau) le texte des prescriptions ; procès-verbal de l'accomplissement de cette formalité sera dressé par les soins du maire.

Un avis sera inséré, par les soins du préfet et aux frais de l'exploitant, dans deux journaux locaux ou régionaux, diffusés dans tout le département.

Article 19. - Les droits des tiers sont expressément réservés.

Article 20. - Faute par l'exploitant de se conformer aux textes réglementaires en vigueur et aux prescriptions précédemment édictées, il sera fait application des sanctions administratives et pénales prévues par la loi du 19 juillet 1976 précitée.

Article 21. - Le présent arrêté ne préjuge en rien les autorisations qui pourraient être nécessaires en vertu d'autres réglementations pour l'implantation, l'installation et le fonctionnement de l'activité susvisée.

Article 22. - "Délai et voie de recours (article 14 de la loi n° 76.663 du 19 juillet 1976 relative aux installations classées pour la protection de l'environnement) : la présente décision ne peut être déférée qu'au tribunal administratif. Le délai de recours est de deux mois pour le demandeur ou l'exploitant. Ce délai commence à courir du jour où la présente décision a été notifiée"

Article 23. - Le secrétaire général de la préfecture et le directeur régional de l'industrie et de la recherche, inspecteur des installations classées, sont chargés, chacun en ce qui le concerne, de veiller à l'exécution du présent arrêté, dont une copie sera adressée :

- au maire de Neuville sur Saône, chargé de l'affichage prescrit à l'article 18 du présent arrêté ;

- aux conseils municipaux de :

- NEUVILLE sur SAONE
- ALBIGNY sur SAONE
- CAILLOUX sur FONTAINES
- CHASSELAY
- LES CHERES
- COLLONGES au MONT d'OR
- COUZON au MONT d'OR
- CURIS au MONT d'OR
- FLEURIEU SUR SAONE
- FONTAINES SAINT MARTIN
- FONTAINES SUR SAONE
- GENAY
- LIMONEST
- MONTANAY
- POLEYMIEUX au MONT d'OR
- QUINCIEUX
- ROCHETAILLEE
- SAINT CYR
- SAINT DIDIER au MONT d'OR
- SAINT GERMAIN au MONT d'OR
- SAINT ROMAIN au MONT d'OR
- SATHONAY Village
- CIVRIEUX
- MASSIEUX
- PARCIEUX
- MIONNAY
- REYRIEUX

- au directeur, chef du service interministériel de défense et de la protection civile

- au directeur départemental des services d'incendie et de secours

- au directeur départemental de l'équipement

- au directeur départemental de l'agriculture et de la forêt

- au directeur départemental des affaires sanitaires et sociales

- au directeur départemental du travail et de l'emploi

- à l'hydrogéologue officiel

- à l'ingénieur en chef, chef du service de la navigation Rhône-Saône

- au ministre de l'agriculture et de la forêt

- à l'exploitant, par la voie administrative.

Lyon, le 7 AOUT 1990

Le Préfet,

Pour le Préfet
Le Secrétaire Général

TRANSLATION

Prefecture of the Rhône
General Administration Department
3rd Office
Environment; Classified Facilities
By: Mrs. Leclerc/PC
Ext. 6151

Roussel Uclaf
Republic of France

Lyon, August 7, 1990

ORDER

Authorizing the Roussel Uclaf Company
To Develop A Process Industrialization Center
Within Its Factory Located at
31 quai Armand Barbès, Neuville-sur-Saône

The Prefect of the Rhône-Alpes Region
Prefect of the Rhône
Officer of the Legion of Honor

HAVING REGARD TO THE FOLLOWING:

Law Number 64.1245 of December 16, 1964, as amended, relating to the water system and water distribution and pollution control;

Law Number 76.663 of July 19, 1976 as amended relating to facilities classified for environmental protection;

Decree Number 77.1133 of September 21, 1977 as amended, implementing the aforementioned laws

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* *

The Prefectoral Order of December 21, 1983 governing the operations of the Roussel Uclaf Company within its factory located at 31 quai Armand Barbès, Neuville-sur-Saône.

The Application filed on June 15, 1989, supplemented on November 17 and 24, 1989, by the Roussel Uclaf Company to be authorized to develop a process industrialization center in its factory located at 31 quai Armand Barbès, Neuville-sur-Saône.

The Opinion dated January 30, 1990 by the Official Hydrogeologist.

The Opinion dated February 12, 1990 by the Departmental* Labor Department.

The Opinion dated February 26, 1990 by the Departmental Health and Social Affairs Department.

The Opinion dated March 6, 1990 by the Interministerial Civil Defense and Protection Service.

The Opinion dated March 9, 1990 by the Departmental (Industrial) Equipment Department.

The Opinion dated March 21, 1990 by the Departmental Agriculture and Forestry Department.

The Opinion dated April 17, 1990 by the Departmental Fire and Rescue Service Department.

The Opinion dated May 10, 1990 of the Rhône-Saône Navigation Service.

The Opinion dated July 30, 1990 by the Ministry of Agriculture and Forestry.

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*"Departmental" as used herein presumably refers to the Departement of the Rhône (translator's note).

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The summary report of May 28, 1990 by the Regional Industry and Research Department, the service responsible for inspection of classified facilities.

The Opinion of the Departmental Hygiene Council expressed at its meeting of June 21, 1990.

The Prefectoral Order of June 22, 1990 extending the time period for investigating the applications;

WHEREAS the interests stated in Article 1 of Law Number 64.1245 of December 16, 1964 and Law Number 76.663 of July 19, 1976 aforementioned are guaranteed by implementation of the conditions of the present Order;

At the proposal of the Secretary General of the Prefecture,
hereby orders:

ARTICLE 1:

1) The Roussel Uclaf S.A. Company shall be authorized to build, within its factory located at 31 quai A. Barbès, Neuville/Saône, a Process Industrialization Center (PIC) including pilot units and laboratory annexes connected with "Chemical Development."

2) This authorization is granted under the conditions set at the time of the application on June 15, 1989, supplemented on November 17 and 24, 1989, provided the provisions of the Order of December 21, 1983 as amended and updated by the present Order are met.

3) The provisions of the present Order shall apply to facilities previously authorized or reported as continuing to operate, as well as to those referred to in the application filed on June 15, 1989.

ARTICLE 2

The list of classified facilities given in the table in Article 1 of the Order of December 21, 1983 as amended (application zones defined by reference to the drawing attached to the present Order) shall be supplemented as follows:

CIP Sector: Process Industrialization Center

Facility Reference	Designation of Activities	Quant. Planned	Nomenclature Heading
A.5001/B.8200	Storage/util. of liquefied and hydrochloric acid (in unit capacities ≤ 30 kg)	250 kg	16 bis 2 b
A.5001	Storage of liquefied combustible amines (unit capacities > 50 kg)	200 kg	48 bis 1 b
B.8200	Factory shops where liquefied combustible amines are used.	100 kg	48 ter B 1
	Facilities containing animals/living beings (implementation of biochemical processes)	--	58 - 11

A.5001/B.8200	Storage/use of methyl bromide	750 kg	88 - 1

ARTICLE 3

Article 2 of the Order of December 21, 1983 as amended shall be supplemented by a paragraph 9 including the following provisions:

"9 SPECIAL PROVISIONS APPLICABLE TO THE PIC:

The Process Industrialization Center (PIC) must, when carrying out its activities, abide by the following provisions and those not contrary to the Order of December 21, 1983 as amended, governing all the activities of the Neuville/Saône Factory.

9.1. Layout of PIC:

9.1.1. The activities listed in the application of 6/15/89 shall be carried out in the buildings or areas listed below:

Building 8100: Technical annex (outside Building 8200).

Building 8200: "Pilot Unit" building for research on products, processes, or materials including six 250 m^2 modules (four independent shops, a process shop that may accommodate all pilot apparatus, and technical and operating areas).

Area 5001: Main open-air storage for raw materials received by the factory (liquids and gases stored in tanks, containers, drums, spheres, or cylinders).

Area 8001: Open-air area associated with Building 8100.

9.1.2. The layout, design, building quality control, operation and maintenance of the units where these activities are conducted shall be effected such as to guarantee:

* That the risks brought about between the various units in this sector (domino effect in an accident situation) are in no case significantly increased,

* That any explosion will not generate an excess pressure of more than 0.05 bar at the property boundary,

* That in an accident situation, the level of toxic gas or vapors discharged to atmosphere is consistently less than the value that would cause irreversible health damage to persons living along the river bank.

9.2. Design of Facilities

9.2.1. The "Pilot Unit" Building will be built of incombustible, fire-resistant materials. The walls separating each shop will have fire resistance of over two hours. The communicating doors (fire resistant for half an hour) will be fitted with automatic closure systems (Bloom type, etc.). The central control room and the technical areas will be equipped with airlocks.

Members bearing metal structures will be protected from heat if, upon a fire, their destruction would excessively spread the catastrophe or compromise firefighting activities.

Internal firefighting equipment designed for the risks to be covered will be located in the immediate proximity of or inside the building.

ARTICLE 4

Article 2, paragraph 7 of the Order of December 21, 1983 as amended shall be supplemented as stated below:

"7.2. Provisions Applicable to Systems Containing Polychlorobiphenyls or Polychloroterphenyls (PCB/PCT):

7.2.1. The electrical transformers shall be located on sealed holding devices with no communication with the ground or sewers whose useful volumes are greater than or equal to the highest of the following:

- 100% of the capacity of the largest container
- 50% of the total volume of PCB's present

7.2.2. The operator shall periodically, and at least every three years, visually inspect the seal (absence of leakage) of the transformers and holding devices.

7.2.3. Premises containing transformers shall have no heat potential that could feed a large fire and shall be equipped with appropriate fire protection and prevention means.

7.2.4. These premises shall be separated from any accumulation of combustible materials by a fire wall lasting two hours or an open space of at least eight meters. The communication devices with other premises must have a one hour fire cutoff.

7.2.5. Appropriate preventive measures must be taken to limit the probability and consequences of accidents leading to spills

of toxic substances. The transformers as well as the other electrical materials present in the premises and/or containing PCB's shall in particular:

- conform to standards effective as of the time of their installation,

- be equipped with individual protection systems against internal heating (for example primary protection by fuses calibrated according to power -- immediate switchoff in the event of overpressure, detection of gas bubbles, or drop in dielectric level).

These systems shall be designed to avoid any automatic resetting and procedures shall be established to prevent manual resetting before the fault has been analyzed.

7.2.6. Wastes contaminated with PCB's coming from operations (maintenance, filling, cleaning, etc.) shall be stored then eliminated under conditions compatible with environmental protection in facilities properly authorized for this purpose. The operator shall be prepared to give substantiating information on this at all times.

Wastes containing over 100 ppm shall be eliminated in an authorized facility ensuring destruction of the PCB molecules. For wastes with a content of between 10 and 100 ppm, the operator will justify the elimination systems chosen - transfer to an industrial waste dump, confinement, etc.

7.2.7. At the time of normal on-the-spot maintenance and repair work (handling systems containing PCB's, etc.), the operator shall take the steps necessary for preventing pollution or hazard risks linked to these operations.

Particular care shall be taken to avoid PCB spills (overflows, breakage of hoses, etc.), overheating of materials or dielectrics, and contact between PCB's and a flame.

An adequate signaling system shall be established for the duration of operations conducted above a sealed surface (by adding a "bache" if needed, etc.) [a "bache" could be a tank or other container for liquids, or a tarpaulin - Translator's note].

The PCB-compatible materials used must not be able to cause an accident (truck without electrical protection, accidents during maneuvers, hoses in poor condition, etc.).

7.2.8. In the event of disassembly work or dumping, the operator shall inform the Inspector of Classified Facilities stating, if necessary, the final destination of the PCB's or PCT's and contaminated substances. The operator will apply for and file substantiating data for their elimination or regeneration with a facility properly authorized and approved for this purpose.

7.2.9. No materials impregnated with PCB's may be scrapped until they have been decontaminated by a process resulting in lasting decontamination with less than 100 ppm by mass of the object. Likewise, materials used for PCB's may not be re-used for any other purpose (change in dielectric, etc.) until they have undergone lasting decontamination to less than 100 ppm by mass of the object.

Merely dumping or burning is forbidden."

ARTICLE 5

Paragraph 7 ("SPECIAL PROVISIONS") of the Decree of the Order of December 21, 1983 as amended, Article 2, shall be supplemented as follows:

"7.3. Provisions Applicable to Catch Basins For Polluted Water:

7.3.1. Wickets shall be installed on all channels directly pouring effluents into the Saône ("clean water" sewers).

7.3.2. The general factory system for water discharged into the Saône shall be equipped with a station design so that, in an accident situation and for a given period of time, it could stop all surface flows (polluted water, runoff water from firefighting, etc.) by diverting it to storage basins.

7.3.3. The design, number, and sizes of the structures and materials of which the barrier devices, collecting system, diversion stations, and catch basins for "polluted water" are made must take the following into account, in particular:

- The water quantities and flowrates (runoff from firefighting, cooling water, protection water, etc.) needed for controlling the largest predictable fire and the water from facilities kept operating or kept safe. Supporting data for sizing shall be forwarded to the Inspector of Classified Facilities.

- The obligation to collect all polluted flows.

- Characteristics of the effluents (temperature, corrosiveness, presence of solid bodies or particles, etc.).

- Possible presence of solids that could clog flows or impede equipment operation.

- Steps taken to prevent the risk of fire propagation by flows that have caught fire.

7.3.4. In any event, the storage basins must have a minimum volume of 4,000 m^3 to ensure at least four hours independence with a normal discharge flowrate (or three hours for any fire extinction runoff). The diversion station will have a minimum capacity of 1500 m^3/h and will be equipped with at least two fully independent pumping groups, including independent energy supplies.

7.3.5. The storage basins shall be protected from the corrosive action of atmospheric agents and effluents.

7.3.6. The entire collection and holding system shall be regularly maintained, inspected, and tested (barrier devices and diversion station in particular).

The frequency and methods of maintenance, testing, and inspection shall be set down in written instructions made known to the personnel concerned. The testing and inspection results will be written on an appropriate media.

7.3.7. Operation of the entire system and monitoring of its correct operation when used will be embodied in written instructions made known to the personnel concerned.

7.3.8. A service area 2.5 m wide around the basins will be provided to allow for intervention or placement of covering materials (foam, etc.) to prevent any air pollution by the products contained.

7.3.9. Effluents from catch basins must be analyzed before being sent either to the Saône or to the factory treatment stations.

7.3.10. Sewers connecting the factory to the communal highway system (Trévoux road) will be eliminated and storage 5100 treated as a holding tank."

ARTICLE 6

The fourth indent of section 6.4.3. ("Firefighting Equipment") of Article 2 of the Order of December 21, 1983 as amended shall be updated as follows:

"High-power mobile firefighting equipment: a 3,000 liter pump truck with foam production (500 liters of emulsifier), a combination truck (400 kg of powder and 2,000 liters of emulsifier), a 2300 kg powder truck, an 800 liter emulsifier reserve and movable containers, etc."

ARTICLE 7

Paragraph 3.3.3. ("Sulfur Content of Fuels") in Article 2 of the Order of December 21, 1983 as amended shall be updated as follows:

"3.3.3. The sulfur content of fuels used must always be less than 1%."

ARTICLE 8

Paragraph 4.7 of Article 2 of the Order of May 17, 1985 as amended shall be supplemented as follows:

"4.7.6. Differentiation Between Systems for Public Water Supply and Industrial Water:

4.7.6.1. One or more protection devices (cutoff reservoirs, disconnect systems, etc.) shall be installed to isolate the

industrial water systems and prevent any backup of polluted or unpolluted water into the public drinking water.

4.7.6.2. The devices used, designed for the characteristics of the systems to be equipped, must have passed technological tests.

4.7.6.3. Permanently accessible and sheltered from any possibility of immersion, these devices must be kept in good operating condition and inspected periodically. Written reports must be held available for the Inspector of Classified Facilities.

4.7.6.4. Devices that might spill must be located so that they do not dilute effluents in the event of a malfunction.

4.7.6.5. The operator will establish plans and diagrams of these devices and the drinking water system, and keep them up to date."

Article 9. Paragraph 8 ("OTHER PROVISIONS") of Article 2 of the Order of December 21, 1983 as amended shall be supplemented as follows:

"8.11. The polluted water storage basins and annexed facilities or developments listed in Article 7.3 above must be operational by December 31, 1990 at the latest."

Article 10. An updated drawing on a scale of 1:2,500 is attached to specify the geographical layout of the various areas concerned by the provisions of the present Order.

Article 11. An extract from the present Order, listing the above provisions covering the facility, shall be permanently and visibly posted in the factory by the operator.

Article 12. The operator must conform to the provisions of Title III, Book II of the Labor Code and to the regulations implementing it.

Article 13. Any modification made by the applicant to the facility, its manner of use, or to its environment such as to make a noteworthy change to the information in the application for authorization must, before being implemented, be made known to the Prefect with all data for evaluation.

Article 14. Any transfer of a classified facility to a new location requires a new application for authorization or a new declaration.

If the operator of the facility changes, the new operator or his representative must so report to the Prefect within a month of starting the new job.

Article 15. The authorization order shall cease to produce effects when the classified facility has been out of service for three years or has not been operated for two consecutive years, except in the case of an Act of God.

Article 16. The operator must, as soon as possible, upon inspection of classified facilities, report accidents or incidents occurring because of the operation of this facility which might affect the convenience of the neighborhood, or its health, safety, public health, or agriculture, or protection of nature and the environment, or preservation of sites and monuments.

Article 17. The operator must abide by laws and regulations already passed or to be passed in the future on classified facilities and, within the prescribed periods of time, take all steps that may be imposed thereon in the interests of public

health and safety to stop any nuisances detrimental to the neighborhood.

Article 18. In accordance with current regulations, an extract of the present Order stating the conditions under which authorization is granted shall be posted at the Town Hall for at least one month stating that third parties may read the entire text at the Town Hall or at the Prefecture of the Rhône (General Administration, third office); a report to the effect that this formality has been carried out will be prepared by the Mayor.

A notice will be published by the Prefect and at the expense of the operator in two local or regional newspapers distributed throughout the Department.

Article 19. The rights of third parties are expressly reserved.

Article 20. If the operator fails to abide by current regulations and the aforesaid provisions, the administrative and criminal penalties provided by the above-mentioned Law of July 19, 1976 shall be applied.

Article 21. The present Order does not in any way prejudge any authorizations that may be necessary under other regulations for layout, installation, and operation of the above activity.

Article 22. "Timing and Recourse" (Article 14 of Law Number 76.663 of July 19, 1976 relating to facilities classified for environmental protection): the present decision may be appealed only to an administrative court. The time for an appeal is two months for the applicant or operator. This period begins to run on the day the operator is notified of the present decision."

Article 23. The Secretary General of the Prefecture and the Regional Director of Industry and Research, the Inspector of Classified Facilities, shall be responsible for enforcing the present Order, each one according to his own responsibilities. A copy thereof shall be sent:

- to the Mayor of Neuville-sur-Saône who must post it according to Article 18 hereof;

- to the municipal councils of:

  - NEUVILLE sur SAONE
  - ALBIGNY sur SAONE
  - CAILLOUX sur FONTAINES
  - CHASSELAY
  - LES CHERES
  - COLLONGES au MONT d'OR
  - COUZON au MONT d'OR
  - CURIS au MONT d'OR
  - FLEURIEU SUR SAONE
  - FONTAINES SAINT MARTIN
  - FONTAINES SUR SAONE
  - GENAY
  - LIMONEST
  - MONTANAY
  - POLEYMIEUX au MONT d'OR
  - QUINCIEUX
  - ROCHETAILLEE
  - SAINT CYR
  - SAINT DIDIER au MONT d'OR
  - SAINT GERMAIN au MONT d'OR
  - SAINT ROMAIN au MONT d'OR
  - SATHONAY Village
  - CIVRIEUX
  - MASSIEUX
  - PARCIEUX
  - MIONNAY
  - REYRIEUX

- to the Director, head of the Interministerial Civil Defense and Protection Department

- to the Departmental Director of Fire and Safety Services

- to the Departmental (Industrial) Equipment Director

- to the Departmental Agriculture and Forestry Director

- to the Departmental Health and Social Affairs Director

- to the Departmental Labor and Employment Director

- to the Official Hydrogeologist

- to the Chief Engineer, head of the Rhône-Saône Navigation Service

- to the Minister of Agriculture and Forestry

- to the operator, through administrative channels

Lyon, August 7, 1990
The Prefect
By the Secretary General
[signature]

ENVIRONMENTAL ASSESSMENT REPORT
(Halofuginone hydrobromide)

6.4. Discussion of the effect that approval will have upon compliance with current emissions requirements at the production site

Approval of the proposed action will have no adverse effect upon compliance with current emissions requirements at the production site.

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

Health effects data

Worker exposure - Halofuginone synthesis

The attached report was prepared by the Central Department of Toxicovigilance.

(See attached sheets).

DEPARTEMENT CENTRAL DE TOXICOVIGILANCE

ainville, le 11 Mars 1991

WORKER EXPOSURE
HALOFUGINONE SYNTHESIS AND FORMULATION

SYNTHESIS OF HALOFUGINONE HYDROBROMIDE

Main hazards

The synthetic route of Halofuginone hydrobromide comprises 3 steps, from the 2 raw (or starting) materials cebrazolone and ridane hydrobromide.

Cebrazolone can be considered as noxious only and ridane hydrobromide as noxious and moderately irritant ; they are the less hazardous compounds of the synthesis.

The steps leading from ridane hydrobromide to Halofuginone hydrobromide are very hazardous,mainly due to :

- The reagents used, such as toxic and very irritant bromine, allyl chloroformate with a toxicity similar to that of phosgene, sodium hydroxide : a corrosive liquid, chloroform : a very volatile solvent and 60° hydrobromic acid : a corrosive fuming liquid .

- The by-products : toxic and irritant allyl bromide, generated during the condensation of allyl bromoridane and cebrazolone.It is suspected that a very small quantity of methyl bromide could be also generated during this condensation.

  The synthesis intermediate, allyl bromoridane, and the catalyst ,tetrabutyl ammonium bromide, are also markedly irritant and noxious.

Halofuginone hydrobromide, itself, is a toxic and very irritative material.

From time to time an additional step is performed to fix halofuginone hydrobromide on a resin and leading to halofuginone resinate ; this resinate form is noxious and rather less irritant than halofuginone hydrobromide.

For each product appearing in this synthesis, a Material Safety Data Sheet (MSDS) is provided and regularly updated by the Industrial Hygiene department of the ROUSSEL UCLAF Group. They are now stored in a group data bank accessible to each person in charge of the safety in the plants. A workshop sheet, derived from the MSDS, insists on the main hazards and gives precise recommendations for protection and handling.

Worker exposure

Since 1982, Halofuginone hydrobromide has been synthesized in the production plant in Neuville-sur Saône.

There are in general 12 campaigns a year, each of them lasting about a week and leading to the synthesis of 750-1000 kg of Halofuginone.

During a year, it can be considered that a total of 48 persons, working in 8-hour shifts could have to deal intermittently with the different steps of the synthesis.

Prevention of exposure is ensured by practically totally closed process and the steps leading from ridane hydrobromide to Halofuginone hydrobromide and involving the handling of the powdered products are performed in a unit separated from the main workshop without possible air communication between them.The reactor is permanently under local exhaust ventilation and the effluent is absorbed before discharge. Only the concerned persons are allowed to enter this separate unit and are equipped with protective overalls (fireproofed when introducing powdered material) and air-supplied respirator.

Local exhaust ventilation is regularly operating along the other reactors of the process.

During the isolation of Halofuginone (precipitation, spin -drying and drying), air-supplied respirator is worn. When handling cebrazolone, dust mask is worn.

Shower is systematically performed before removing personal protective equipments.

Regular medical surveillance is applied to each worker.

SAFETY DATA SHEET

ROUSSEL UCLAF

MAIN HAZARDS

TOXIC BY INHALATION AND IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

35, Bd des Invalides
75007 PARIS - FRANCE
Tel : 40-62-40-62

1. IDENTIFICATION	
1.1. Trade name	HALOFUGINONE HYROBROMIDE
1.2. Supplier : Manufacturer	Roussel Uclaf
1.3. Kind of use ..... (for details : see notice)	Veterinary use,(Anticoccidian)
2. CONSTITUTION OF THE PRODUCT	
Substance / or / Preparation	7-bromo-6-chloro-3-(3-(3-hydroxy-2-pipéridyl)acétonyl)-4(3 H) quinazolinone hydrobromide.
Hazardous ingredients :	
Impurities (potentially harmful) :	None.
3. PHYSICAL DATA	
3.1. Physical state	White to grey Powder .
3.2. Critical temperature	Melting point : > 250°C (482°F) with decomposition.
3.3. Solubility	Insoluble in water. Sparingly soluble in éthanol
3.4. pH	2(about)
3.5. Vapor pressure	Not determined.
3.6. Specific gravity	Bulk : 0.35/0.5 (micronized 0.25)
3.7. Other data	None.

The data included in this sheet have been put down in accordance with the french decree 87200 of 25.3.87. Delegation of Industrial Hygiene
TEL: 16 (1) 48 91 44 31 - FAX: 16 (1) 48 91 48 80 - DATE: FEBRUARY 12, 1991

HALOFUGINONE HYROBROMIDE

4. STORAGE AND MANIPULATION	
4.1. Precautions to be taken in handling and storing	Keep in well closed container, away from light.
4.2. Packaging material recommended :	Brown glass, polythene, propylene.
to be avoided :	Aluminium, cardboard, paper, steel, PVC , metals.
4.3. Dangerous reactions with	With alkalines materials.
4.4. Hazardous decomposition products	Unknown.
4.5. Personal protective equipment	Wear dust-tight overalls pressurized, gloves, boots.
4.6. Special protection measures .	Avoid exposure - obtain special instructions before use. Have a shower after handling. Wash all contaminated clothing before re-use. . Use a protective cream.
4.7. Measures to be taken after leaking or accidental spillage	Before intervention see item protections. Collect thouroughly into plastic bag. clean the durty areas with a solution of alkaline water Rinse the polluted area with plenty of water.
4.7.1. Neutralization or destruction of product ..	Incineration in accordance with laws.
4.7.2. Destruction of emptied packaging	Incineration in accordance with laws.
4.8. Other recommendations	After handling, apparatus should be decontaminated with : a solution of methanol/sodium hydroxide. Handle in dust-tight glove-box, whenever possible.

5. INFLAMMATION AND EXPLOSION

5.1. Flash point (clos.cup)	Not applicable.
5.2. Auto-ignition temperature	Minimal energy for inflammation < 1200 mJ. (Hartman method)
5.3. Unusual fire and explosion hazards	In case of fire, the product emits toxic fumes.
5.4. Extinguishing agents -suitables	Sprayed water
-not suitables	None.
5.5. Special fire fighting procedures	Wear a self-contained respiratory apparatus.
5.6 Other recommendations	Avoid rejection of extinguishing water in the environment .

6. TOXICOLOGICAL DATA

LD 50 oral route/rat : 31 mg/kg. (vehicule: corn oil) LC 50 inhalation/rat : 0.053 mg/l/4h.

Extremely irritating to eyes .,, mucosa and skin . The irritation may last several days. Some cases of skin sersitization have been reported.

TOXIC BY INHALATION AND IF SWALLOWED. In animals: the product causes central nervous troubles, gastro-intestinal,and heamorrhagic troubles. In human: In one case, prolonged inhalation of high doses caused severe respiratory troubles, and hospitalization had been necessary.

7. EMERGENCY, FIRST AID PROCEDURES

RAPIDITY OF TREATMENT IS PRIMORDIAL. CONTACT WITH SKIN: Take off immediately all contaminated or spattered clothing. Rinse with plenty of water . least 15 minutes. If skin burns occurs, alert a physician .
CONTACT WITH EYES : Rinse immediately with plenty of water for at least 15 minutes. Rinse maintaining eyelids well apart . Take advice of ophthalmologist .
IN CASE OF INHALATION : Take the victim out of the contaminated area. Make the victim blow his nose.
IN CASE OF INGESTION : Do not make the victim vomit. Lie the victim in half upright position. Call immediately a physician and contact the nearest antipoison center. Watch over the victim until the arrival of the rescrue team. . TREATMENT: Not specific, only symptomatic which aims at correcting digestive and central nervous troubles, possibly coagulation troubles. Possibly, give a non sedative anti-histaminic treatment for 48 hours.

HALOFUGINONE HYROBROMIDE

8. PROTECTION OF THE ENVIRONMENT

Do not discharge washing waters in public sewers and water sources (pounds, streams,...)

9. OTHER INFORMATION

Refer also to technical instructions for use. Incineration in accordance with laws. .The technics of incineration considered as safe towards the envirnonment, require an incineration at least 900°C (1650°F), and an alkaline washing of the fume in case of presence of halogen in the product or in the packaging material.

Labelling/packaging :

Symbols : T Xi
C.E.E. Nu : Volontary labelling
Phrases : R23/25-36/37/38 S36/37/39-45-53

10. TRANSPORTATION

U.N. Number2811

	R.T.M.D. (France)	RID/ADR (Internat.)	O.M.C.I. (Sea ways)	I.A.T.A. (Air ways)
Class	6.1	6.1	6.1	6.1
Group, number or page (IMDG / OMCI)	61170a	90°A	gr I p6236	gr I 6 poison
Tramp				
Passenger				
Label	6.1	6.1	6 poison	6 poison

This material safety completes the technical notice but does not replace it. The information contained here in are current as of the date of this data sheet.
This sheet is the translation of our French official text, which is the only one valid in case of litigation. This is in accordance with the current legislation and given honestly. User's attention is drawn on potential hazards when the product is not employed under the conditions of recommended use.

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

LIST OF PREPARERS

- Dr Martine DANAN-DURIEUX (Central Department of Toxicovigilance and Industrial Hygiene)

  Medical Doctor, Graduate of the Faculté de Médecine de Paris, post-grade studies in Clinical and Toxicological Pharmacology, who had 17 years of experience in the field of medicine and post-marketing surveillance as of January 1, 1991.

- Mr Jean-Claude GRANEL (Central Department of Environment and Safety)

  Chemical Engineer, Graduate of the Ecole Nationale Supérieure de Chimie de Montpellier, who had 21 years of industrial experience as of January 1, 1991.

- Mr Marcel RICORD (Quality Assurance, Process Safety and Environmental Protection at Neuville-sur-Saône)

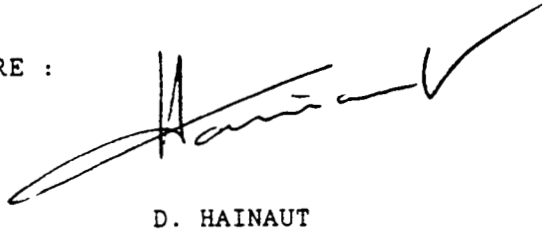
  Chemical Engineer, Graduate of the Ecole Supérieure de Chimie Industrielle de Lyon, who had 26 years of industrial experience as of January 1, 1991.

HALOFUGINONE HYDROBROMIDE

ENVIRONMENTAL ASSESSMENT REPORT

CERTIFICATION

The undersigned applicant certifies that the information furnished in this Environmental Assessment Report is true, accurate and complete to the best of his knowledge.

SIGNATURE : 

DATE : February 1991

D. HAINAUT

Manager,
Service des Techniques
et des Enregistrements
ROUSSEL UCLAF

ATTACHMENT II

DANOCHEMO

DanoChemo A/S
P. O. Box 236
Malmparken 5
DK-2750 Ballerup
Denmark

Telephone:
+45 42 97 37 00

Telefax:
Administration
+45 42 97 51 51
Sales/R&D
+45 42 97 08 42

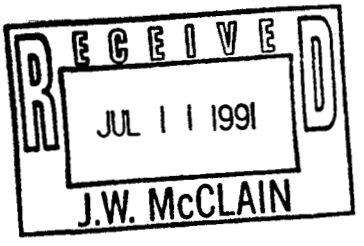
Telex:
35382 (dchmo dk)

Bankers:
Unibank
Copenhagen
Denmark

Reg. No.: 22 135

Hoechst-Roussel Agri-Vet Company
Route 202-206 - P.O.Box 2500
Somerville, NJ 08876-1258
USA

Att.: John W. McClain



July 4, 1991
ept/jlt

Dear Mr. McClain,

Enclosed please find the certificate from our local Environmental Protection Agency. Enclosed is also 2 copies of our Environmental Protection Act and Statutory Order no 176, both translations obtaind from the Ministry of the Environmental.

I hope this will be satisfactory for FDA, otherwise please feel free to contanct us again.

Kind regards
DanoChemo A/S

Liselotte Buus
for
Ellen Petersen
Quality Control Manager

BALLERUP KOMMUNE
TEKNISK FORVALTNING

RÅDHUSET . 2750 BALLERUP . TELEFON 42 97 05 01 . GIRO 3 000 478

DanoChemo A/S
Malmparken 5
2750 Ballerup.

J. nr. 303190

Int. HH/LS

Ekspeditionstid:
Mandag - fredag: kl. 9.30 - 13.00
torsdag tillige kl. 15.45 -17.45

Telefontid:
Mandag - onsdag: kl. 8.15 - 15.00
torsdag: kl. 8.15 - 18.00
fredag: kl. 8.15 - 15.00

Den: 19 JUNI 1991

C E R T I F I C A T E

DanoChemo A/S is a company to which chapter V, "Heavily Polluting Enterprises etc.", of the Environmental Protection Act applies.

DanoChemo A/S has been given permisson to produce in accordance with the above mentioned Act provided that certain, specified conditions are fulfilled.

This is certified by the local Environmental Protection Agency, Ballerup Kommune (Ballerup Municipality).

Ballerup, the 19 JUNI 1991

Klaus Ole Mogelvang
(Chief of the Technical Dep.)

Henrik Hansen
(Chief of the Dep. for Environmental Protection)

DANISH HEALTH AUTHORITIES.

Danochemo A/S is approved by the Danish Health Authorities. The registration number is J.No. 2470-3.

ADDRESS

Complete Address

The administrative headquarter as well as the manufacturing facility has the following address:

DANOCHEMO A/S
Malmparken 5
DK-2750 Ballerup
Denmark

Affiliation with Parent Company

Danochemo became an independant company April 1st 1988.

STATEMENT OF COMMITMENT.

Danochemo transforms crystalline halofuginone into a gelatin coated product. Danochemo performs this coating process as a toll manufacturing service for Roussel UCLAF.

The crystalline halofuginone is supplied by Roussel UCLAF.

The equipment used for coating of halofuginone is used only for this purpose.

All manufacturing operations and controls will be conducted in accordance with the Danish rules and regulations for manufacturing practices and will meet United States Good Manufacturing Practices requirements.

PLANT EQUIPMENT

Description of the Plant

The position numbers mentioned below refer to the numbers in the enclosures 1, 2, 3, 4, 5, and 6. All equipment items that come into contact with the product are made of either steel or plastic (polyethylene).

Pos. 1: Suspension Tank

750 l stainless tank with stainless mixer. A sack emptying device is placed above.

Pos. 2: Emulsion Tank

Stainless tank with mixer. As the tank is equipped with double jacket, it is possible to regulate the temperature of the contents of the tank.
The reason for changing from 2 tanks into 1 tank is safety. The handling of the material is minimized by doing so.

Pos. 3: Spraying Tower

The tower is made of stainless materials. The atomizer is placed at the top of the tower. Diameter: approx. 3000 mm.

Pos. 4: Fluid-Bed

Made of stainless materials. Diameter: approx. 2500 mm.

Pos. 5: Central Tank

A stainless tank with a capacity of approx. 100 l and fitted with a manually operated sieve. A polyethylene hose fitted to the taphole connects the tank with container pos. 6.

Pos. 6: Container

Stainless container with mixer and vacuum pump.

Pos. 7: Sieve

Rotation sieve made of stainless material.

Pos. 8: Scale

Automatic scale for weighing the contents of the cardboard boxes.

Pos. 9: Roller Path

Non-powdered roller path for transporting the cardboard boxes.

Pos. 10: Cyclone

Rustproof cyclone for cleaning the exhaust air from the spraying tower.

Pos. 11: Auxiliary Materials Tank

Auxiliary materials tank. The tank is made of ordinary carbon steel.

Pos. 12: 2 Filters

1 filter to clean air from cyclone and central exhaust, and 1 filter to clean air from local exhaust.

Pos. 13: Tape Machine

Pos. 14: Sack emptying Device

Maintenance of the Plant

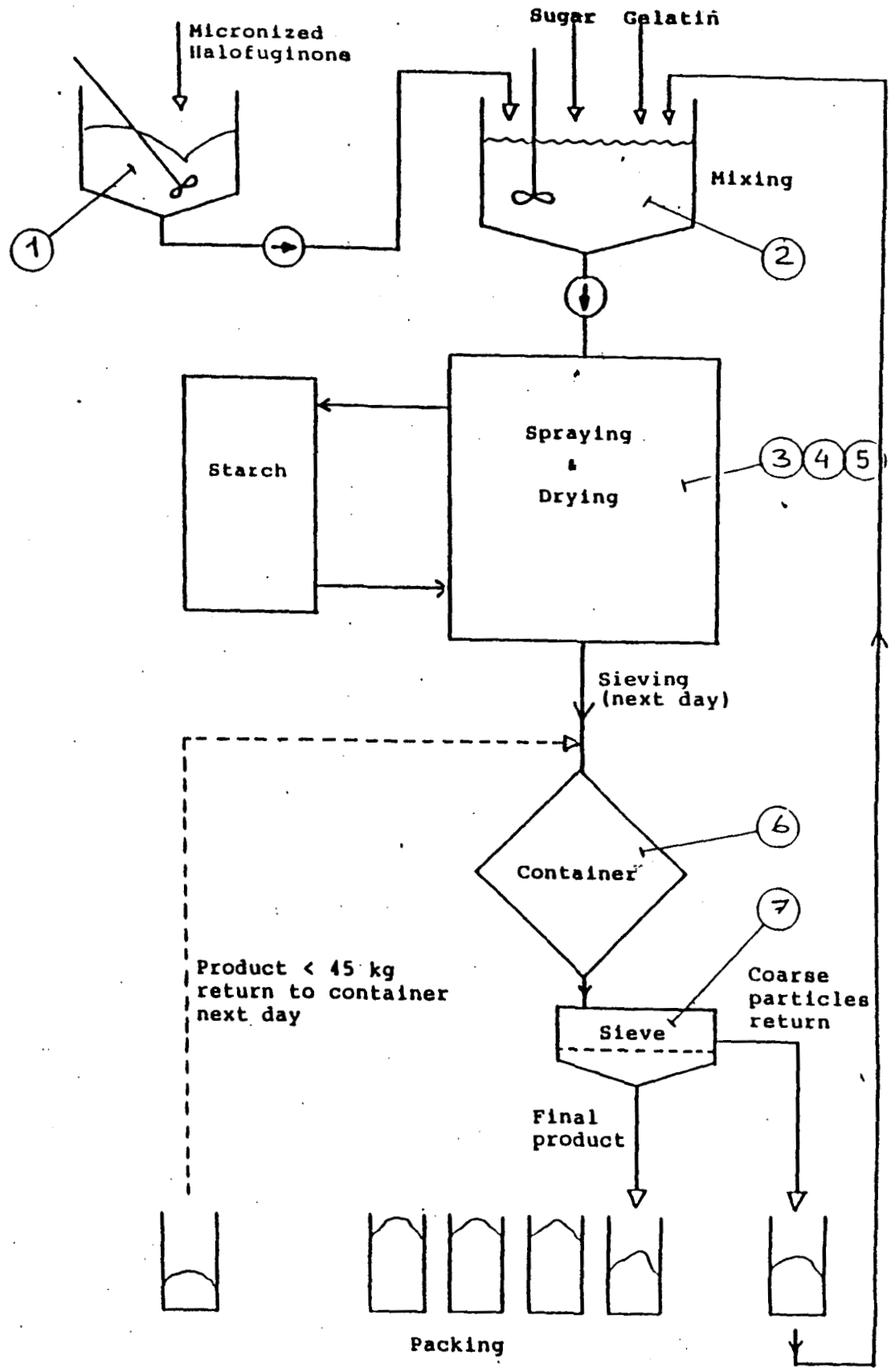
As halofuginone is poisonous and skin irritating (cf. the safety instructions), emission of powder and fumes from the plant (tanks, feeding system, spray unit, sieve installation etc.) must be avoided.

In General

It is important that the plant functions smoothly and that any break-down of smaller or larger parts of the plant is avoided. Maintenance (check-up and greasing etc.) must be undertaken by the workshop staff.

If any irregularities are observed during the operation, the person observing them must report them to his immediate superior so that any breakdown may be remedied immediately.

COATING OF HALOFUGINONE



MINISTRY OF THE ENVIRONMENT, DENMARK
National Agency of Environmental Protection
Translation LK
January 1987

ENVIRONMENTAL PROTECTION ACT

as per January 1, 1987

This is an act to consolidate Act No. 372 of June 13, 1983 on Environmental Protection, cf. Promulgation Order No. 85 of March 8, 1985, as amended by Act No. 329 of June 4, 1986.

Part 1

Objects etc.

1. (1) The objects of this Act are to
   1) prevent and combat pollution of air, water and soil,
   2) prevent and combat noise nuisances,
   3) establish environmental regulations based on considerations of hygiene,
   4) provide the necessary administrative basis for the planning and implementation of pollution control.

   (2) This Act shall aim especially at safeguarding physical qualities essential to the hygienic and recreational aspects of human life and to the maintenance of the diversity of plants and animals.

   (3) When determining the scope and nature of anti-pollution measures, the character of the physical environment and the impact of pollution thereon shall be considered.

2. (1) This Act shall apply to all activities which, by emission of solid, liquid or gaseous substances, vibrations and noise may cause pollution of the air, soil, watercourses, lakes or the sea.

   (2) This Act shall also apply to activities involving hazardous processes, and to storage and transportation of dangerous substances in such a way that interruption of operations or accidents may result in imminent risks of pollution as mentioned in subsection (1) hereof.

3. (1) Any person who proposes to commence activities as mentioned in section 2 of this Act shall choose such site for

the activities that the pollution risk is minimized.

(2) When choosing the site, consideration shall be given to the nature of the area, including present and planned uses, and to the possibilities of appropriate disposal of waste water and other kinds of waste.

(3) Any person who carries on or proposes to commence activities as mentioned in section 2 of this Act shall take the precautions necessary to prevent and combat pollution, and organize the activities so as to cause the least degree of pollution, cf. subsection (3) of section 1 of this Act.

Part II

General Rules and Hygienic Regulations

4. (1) The Minister for the Environment may lay down regulations on waste, keeping of animals, vermin and other matters when necessary in order to prevent and combat health risks or to eliminate serious environmental nuisances.

(2) The regulations shall provide for hygienic conditions for bathing water and beaches, swimming pools and hot water baths, camping sites, restaurants and other places where large numbers of people assemble.

(3) The regulations shall specify the powers of a local council to intervene, by orders for remedying measures or prohibition if necessary, against activities, cf. section 35 of this Act, where such activities result in unhygienic conditions or serious environmental nuisances.

4.a. (1) The local council shall organize an effective extermination of rats.

(2) Owners of land shall be obliged to take such measures as regards protection of their property and the cleaning of same so the chances of rats surviving at the premises are as limi-

ted as possible.

(3) The Minister for the Environment may lay down detailed regulations on rat extermination and on duties of the land owners pursuant to subsection (2) hereof. This includes regulations on:

1) The duties of the local council in connection with rat control,
2) authorization of persons or enterprises effecting rat control,
3) the powers of the local council to order that the measures mentioned in subsection (2) hereof be taken,
4) the possibilities of the local council of having measures in subsection (2) hereof taken at the expense of the responsible person pursuant to subsection (2) of section 49 of this Act,
5) the extermination of rats within certain limited areas using special methods with the purpose of testing rodenticides or procedures of extermination.

(4) The expenses defrayed by the local council in pursuance of no. 4 of subsection (3) of this Act, shall be charged on said property with a right of priority similar to that of the local rates.

(5) It shall be prohibited to breed wild rats without permission from the Minister for the Environment.

5. (1) Regulations laid down pursuant to sections 4 and 4a of this Act shall define the extent to which the local council may adopt further control measures on the matters to which the regulations apply.

(2) The regulations laid down pursuant to sections 4 and 4a may contain regulations fixed by the Minister for the Environment on the powers of the local council to collect charges.

(3) In the regulations laid down pursuant to sections 4 and 4a the Minister for the Environment may include provisions that complaints against decisions of minor importance to environmental protection cannot be appealed to any other administrative authority.

6. (1) To prevent pollution in cases of significant importance to the protection of the environment, the Minister for the Environment may issue regulations on:

1) pollution from enterprises, plants, machinery, tools, furnaces and means of transport,
2) installation design, operation and maintenance of enterprises etc. mentioned in no. 1) hereof,
3) pollution from waste water plants, purification plants, incinerator plants and landfill sites, and design, operation and maintenance of such plants,
4) the purity of and addition of substances to fuel used for heating purposes or the operation of means of transport and engines,
5) pattern approval of certain plants, machinery, tools and means of transport, and
6) hazardous processes and storage and transport of dangerous substances as mentioned in subsection (2) of section 2 of this Act.

7. (1) (Repealed).

8. (1) For the guidance of public authorities, the Minister for the Environment may lay down provisions as to the quality of surface water, of air, and of soil, as well as provisions as to noise levels.

(2) To fulfil international obligations, the Minister for the Environment may lay down binding regulations as to the quality of surface water, of air, and of soil, as well as to noise levels.

(3) The regulations laid down in pursuance of subsection (2) hereof shall be applied in dealing with cases arising under Parts III, IV, V and IX and under regulations laid down in pursuance thereof.

(4) Decisions taken under this Act or regulations laid down in pursuance of this Act may be altered where it is necessary in order to consider the observance of the regulations under subsection (2) hereof.

9. (1) The Minister for the Environment may issue regulations on pattern approval of plants, devices or apparatus, including measurement equipment, to be used for anti-pollution purposes.

10.(1) After negotiations with the Minister for Public Works, the Minister for the Environment may issue regulations stipulating that major road and railway building projects shall be submitted to him prior to their implementation.

(2) After negotiations with the Minister for Public Works and the local organizations, the Minister for the Environment may lay down regulations on the noise levels which shall apply to new noise sensitive buildings to be situated along major roads and railways.

Part III

Protection of Ground Water and Water Supply Interests

11. (1) Liquids and substances likely to pollute the ground water shall not without a licence issued by the Minister for the Environment be placed in or on the soil, or discharged onto the soil, or into the sub-soil through percolation systems, borings or in any other way. Containers for liquids and substances likely to pollute the ground water - not including tight containers used exclusively for liquid manure or silage effluent - may not be placed in the soil without a licence granted by the Minister.

(2) The Minister may issue regulations to prevent pollution and risks of pollution of the ground water by the liquids and substances mentioned in subsection (1) hereof. In this connection the Minister may lay down regulations stipulating in which cases and on what conditions the licences under subsection (1) shall be issued as well as regulations stipulating that no licence shall be required under subseciton (1) where certain specified requirements have been fulfilled. Further, the Minister may lay down regulations on supervision and on design and emptying of containers and pipe systems for such liquids and substances as well as regulations on charges.

(3) Licences issued pursuant to subsections (1) and (2) hereof may be modified or revoked any time without compensation when advisable because of pollution risks to water supply plants, because of the implementation of another method of sewage discharge in accordance with plans under section 21 of this Act, or for any other reason of environmental protection. This shall also apply to installations which with or without a licence were legal when this Act came into force.

(4) Where revocation is made pursuant to subsection (3) hereof as part of the implementation of another method of sewage discharge in accordance with plans under section 21 of this Act, the decision as regards the revocation shall be made by the local council. In such cases the revocation shall be regarded as having been made when connection to the new plant has been affected. In other cases the decision of revocation shall be made by the authority issuing the licence.

(5) Where the decision of the local council pursuant to clause 1 of subsection (4) hereof is made in connection with implementation of a plan adopted in accordance with the provision of subsection (3) of section 21 hereof, the decision of the local council shall not be brought before any other administrative authority.

(6) The provisions of sections 27 and 28 of this Act shall also apply to such common plants as shall be established by licence pursuant to subsections (1) and (2) hereof.

12. (1) Where a regional council issues a licence for a plant to abstract ground water pursuant to section 2o of the Water Supply Act, it may fix a protection area within which cesspools etc. receiving w.c. effluent, and other of the installations covered by subsection (1) of section 11 of this Act shall be prohibited after the expiration of a fixed period of time.

(2) The regional council may later alter the protection area and approve certain matters prohibited pursuant to subsection (1) hereof.

13. (1) Where a regional council issues a licence under section 2o of the Water Supply Act to a public water plant for the abstraction of water from a watercourse, a protection area may be fixed within which industrial enterprises, institutions, camping sites etc. must not be carried on, and substances likely to pollute the water supply plant not be stored.

(2) The regional council shall see that inclusion in the protection area be registered on the land in question with priority over all other interests in the said land.

(3) Where the land owner is ordered to alter or discontinue an existing activity, compensation shall be paid. Where such activity was illegal, unappropriate or unjustified, the compensation may be reduced or dropped. In case of dispute, the question of compensation shall be settled by the Land Tribunal. Subsections (3) and (4) of section 14 of this Act shall apply similarly.

(4) The regional council may later alter the protection area and approve certain activities prohibited pursuant to subsection (1) hereof.

14. (1) A regional council may issue a prohibition or an order to prevent the risk of pollution of existing or future plants for the abstraction of ground water. A regional council may issue the prohibitions and orders necessary to ensure that watercourses exploited by water supply plants pursuant to section 2o of the Water Supply Act are not exposed to pollution with harmful effects to the water supply through outlet or discharge of substances or through the use of water for watering of cattle, washing etc. The regional council may resolve that fishing or sailing shall not take place in such watercourses, or that fishing or sailing shall take place on specified conditions.

(2) Whether compensation shall be paid as a result of a prohibition or order as mentioned in subsection (1) hereof shall be decided by the Land Tribunal at the request of the person to whom the prohibition or order was directed. Prohibitions or orders regarding lawful activities, including lawful application and storage of fertilizers in agriculture, horticulture and forestry, may, however, only by issued on payment of full compensation, without prejudice to other rules of law.

(3) Compensation pursuant to subsection (2) hereof shall be paid by the users of water who benefit from the prohibition or order. Where the local council involved is not already as a consequence hereof liable to pay compensation the tribunal may decide that the local council shall pay the compensation fully or partially if the measure is deemed important to a major part of the inhabitants of the local district.

(4) The claim for compensation shall be brought before the Land Tribunal not more than 4 weeks after the prohibition or order has been notified to the person in question.

15. (1) When deciding matters of water abstraction under the Water Supply Act, the Minister for the Environment shall have the same powers as those conferred upon a regional council pursuant to sections 12-14 of this Act. The same shall apply to the Greater Copenhagen Council when deciding such matters.

(2) In matters concerning the water supply of Greater Copenhagen area which under the present part of this Act come within the jurisdiction of a Land Tribunal, decisions are made by the special Land Commission mentioned in subsection (2) of section 9 of the Water Supply Act.

(3) After negotiations with the local organizations the Minister may lay down regulations stipulating to what extent the powers which pursuant to sections12-14 of this Act are conferred upon the regional council and the Greater Copenhagen Council respectively, shall be exercised by the local council.

16. (1) The Minister for the Environment shall lay down further regulations on dealing with matters pursuant to sections 11-14 of this Act, including the calling in of landowners and users whose interests may be affected, to a meeting prior to the fixing of the protection area pursuant to sections 12-13 of this Act.

Part IV

Protection of Surface Water

17. (1) Substances likely to pollute water shall not be discharged into watercourses, lakes or the sea, or stored so close to such waters as to cause danger that the substances enter watercourses, lakes or the sea. However, pursuant to section 18 of this Act, a licence may be issued to discharge waste water into watercourses, lakes or the sea.

(2) The Minister for the Environment may issue regulations or make a decision to the effect that substances mentioned in subsection (1) hereof may in special cases be discharged into watercourses, lakes or the sea, and approve chemicals to be used in the control of water weeds. Moreover, the Minister may issue a licence to carry out scientific experiments on chemicals in surface water for a limited period of time.

18. (1) Licences to discharge waste water into watercourses, lakes or the sea, cf. subsection (1) of section 17 of this Act, shall be issued by the regional council.

(2) After negotiations with the local organizations, the Minister for the Environment may issue regulations to the effect that licences pursuant to subsection (1) hereof shall in some cases be issued by the local council.

19. (1) Waste water plants lawfully constructed and licensed in pursuance of legislation in force before the coming into force of this Act or for which a licence was not required, may still be used.

(2) The Minister for the Environment may issue regulations requiring regional or local councils, cf. subsection (2) of section 18 of this Act, within specified time limits to review the question of the continued use of such plants.

2o. (1) The Minister for the Environment may issue regulations on the consideration by regional councils and local councils of matters pursuant to sections 17-19 and 21-33 of this Act, including the extent to which interested landowners and authorities shall take part in the preparation of waste water plant projects by the holding of meetings or otherwise. Moreover the Minister may issue regulations on requirements to be met by waste water purification, waste water projects and local plant projects and on terms and conditions of licences pursuant to section 18 of this Act.

21. (1) A local council shall work out an overall plan for the discharge of waste water in its district. The plan shall contain information on:

1) existing and planned sewage areas and purification measures,
2) areas where discharge shall take place to such plants as shall be established by licence pursuant to section 11 of this Act,

3) plants which are intended to be built by the local authorities and on other plants intended to be built, and
4) the time limits envisaged for project preparation and building of these plants.

(2) The plan, with amendments and supplements, shall be submitted to the regional council for approval. The regional council may order the local council to work out part-plan proposals and proposals for amendments and supplements to an approved plan.

(3) The regulations pursuant to subsection (2) shall not apply where guidelines for the quality of the water are included in an approved regional plan or in an approved supplement to a regional plan in pursuance of the regulations under section 6le. The local council shall make the final adoption of the plan mentioned in subsection (1) hereof.

(4) Prior to the adoption of the plan by the local council pursuant to subsection (3) hereof, the plan shall, in accordance with detailed regulations laid down by the Minister for the Environment, be forwarded to the regional council which shall ensure that the plan is in accordance with the plans mentioned in section 6le of this Act. Further, the regional council shall ensure that the plan is in accordance with water abstraction and water supply plans prepared under the regulations of the Water Supply Act and that the plan also considers the protection of ground water.

(5) Where the regional council raises any objections under subsection (4) hereof within a time limit fixed by the Minister for the Environment, the local council shall not adopt the plan definitively until agreement between the local council and regional council has been reached as to the necessary amendments of the plan. In case of dispute the matter shall be settled by the Minister for the Environment.

(6) Where the owners of at least half of the developed land in an area to be sewered according to a proposal by a local council for a plan pursuant to subsection (1) hereof raise objections hereto within a time limit, fixed by the Minister for the Environment, after the publication of the proposal for the plan, the regional council shall negotiate this matter with the local council. The plan cannot be adopted definitively before the local council and the regional council have agreed that the sewerage is appropriate. In case of dispute the matter shall be settled by the Minister for the Environment.

(7) The adoption of the plan by the local council under subsection (3) hereof shall not be brought before any other administrative authority.

(8) After negotiation with the local organizations the Minister for the Environment may lay down further regulations on the contents of local plans including joint local plans as well as regulations on the preparation and revision of the plans and on their connection with local planning.

(9) The Minister for the Environment may lay down further regulations to the effect that complaints against sewerage of land may be made by the landowner under special circumstances. The Minister may decide that the provisions of subsections (6) and (7) hereof shall not apply under these circumstances.

22. (1) (Repealed).

23. (1) Where the project for a plant, which according to a plan as mentioned in section 21 of this Act is to be established by the landowners, cannot be expected to be prepared by the time stipulated in the plan, the local council shall work out the project and may order the landowners to carry it out within a specified period of time.

24. (1) Where a local council has not, by the time stipulated in a plan mentioned in section 21 of this Act, carried out or ordered the carrying out of a plant included in the plan, the regional council may order the local council to carry out or order the carrying out of the plant within a specified period of time.

(2) Where the local council exceeds a time limit fixed according to subsection (1) hereof, the regional council may order the plant to be built at the expense of the local authority.

25. (1) Where a waste water plant does not work properly from the point of view of environmental protection, e.g. where it does not comply with or consider requirements laid down according to sections 6, 8, 2o, and 6le of this Act, the regional council may require that the necessary improvement or renewal of the plant be executed.

(2) Where pollution cannot be remedied or where orders in pursuance of subsection (1) hereof are contravened, the regional council may issue a prohibition against the future operation of the plant and possibly require the removal of the plant.

(3) Where the pollution gives rise to imminent and serious health risks, prohibition may be issued immediately.

(4) Where the plant is covered by regulations issued by the Minister for the Environment in pursuance of subsection (2) of section 18 the local council shall make decisions in accordance with subsections (1-3) hereof.

26. (1) Costs in connection with the operation and maintenance of a waste water plant shall be borne by the person who has ordered the building of the plant or by the person on whose behalf the plant has been built, provided no other agreements are made in connection with the issue of the licence or later.

27. (1) Costs in connection with the building, operation and maintenance of public and private waste water plants, including expenses in connection with common sewers, intercepting sewers, purification plants, acquisition of property and restrictive covenants shall be borne and shared according to rules laid down by the local council, cf., however, section 28 of this Act.

(2) When regulations are laid down pursuant to subsection (1) hereof the total amount charged to the landowners shall not exceed the costs in connection with the building and operation, including maintenance of the projects or plants for which the contributions are collected. Contributions to the operation shall only be collected from properties served by the waste water plants. Contributions to the building of plants shall only be collected from properties served by or planned to be served by waste water plants, cf. subsection (5) hereof.

(3) The costs pertaining to the building and operation of common private waste water plants shall be borne by the properties served by the plant in question. Where a common private waste water plant is connected to a public waste water plant, a total amount shall be fixed covering the connection of the private plant.

(4) Where the plant presents a general public interest, the local council shall, apart from expenses charged on local property and public areas, grant subsidies or respite for expenses pertaining to the establishment or operation of the plant.

(5) In pursuance of detailed regulations issued by the Minister for the Environment the contributions of the landowners in connection with establishment of the plant may not be collected prior to the date of approval of a plan or part-plan pursuant to subsection (2) of section 21 of this Act, or from the time of adoption of a plan by the local council pursuant to subsection (3) of section 21 of this Act. Prior to the approval of such plan, contributions to the establishment of the plant may be collected as from the date of approval of

a project pursuant to subsection (2) of section 22 of Act No. 372 of June 13, 1973.

(6) Where a plan, a part-plan, or a project is changed at a later time, the contribution of the landowners shall be adjusted in accordance with the change, if the change is considered of importance in relation to the shares contributed by the landowners.

(7) By regulations laid down in pursuance of subsection (1) hereof the local council may fix charges to be levied on the emptying and disposal of sludge and waste water from domestic tanks and holding tanks for domestic waste water. Further, the local council may decide the distribution of the costs on the properties involved in connection with studies necessary for the evaluation of the possibility of establishing a percolation plant.

(8) Complaints against decisions made by the local council pursuant to subsections (1-7) hereof may be made only on a point of law.

28. (1) In case of dispute between local councils, the Minister for the Environment may direct that the regional councils shall decide on the establishment of common local waste water plants and the distribution of the pertaining costs. Further, the Minister may prepare standard rules and regulations etc.

(2) The Minister may lay down further regulations concerning the reception of waste water by public and private waste water plants within the capacity of the plant.

29. (1) In special cases the Minister for the Environment may grant subsidies in partial payment of initial expenditure in connection with waste water plants.

(2) The Minister may moreover grant subsidies in partial payment of expenses in connection with the preparation of projects likely to be essential to the control of pollution of watercourses, lakes or the sea.

30. (1) The local council may require that the development of an area be postponed until a decision has been made about the waste water discharge pursuant to Parts III and IV of this Act or to regulations issued pursuant to Parts II-IV of this Act.

31. (1) When a licence has been issued pursuant to sections 11 and 18 of this Act, the local council may to the extent necessary decide on expropriation. Subsection (5) of section 4; subsection (3) of section 43; section 44; subsections (1) and (2) of section 45; and sections 47-49 of Public Roads Act shall be similarly applicable.

32. (1) Compensation occasioned by the decisions mentioned under section 31 of this Act shall be fixed according to the general provisions of law. First clause of subsection (3) of section 45; subsections (2-6) of section 51; and sections 63-64 of Public Roads Act shall be similarly applicable.

(2) Where the compensation amount has not been fixed amicably within 8 weeks after the expropriation decisions mentioned in section 31 of this Act, or where the decisions have been appealed within 4 weeks after the final decision, the local council shall bring the question of compensation before the land commission for decision.

(3) In matters of expropriation in the municipality of Copenhagen, the local council shall bring any questions of compensation before the special Land Commission mentioned in the Water Supply Act.

33. (1) As regards first claim of the local council on real property for amounts paid in advance pursuant to this Part, and as regards the collection of contributions, the provision of subsection (1) of section 65 and subsection (1) of section 7o of the Watercourse Act shall be similarly applicable, also as regards distress.

Part V

Heavily Polluting Enterprises etc.

35. (1) Enterprises, plants or activities included in the Annex to this Act shall not be established or commenced without prior approval. The enterprises, plants or activities mentioned shall not without approval be extended or modified as regards buildings or operation in such a way as to result in increased pollution.

(2) The Minister for the Environment may amend the Annex to this Act.

36. (1) The Minister for the Environment may lay down regulations requiring existing enterprises, plants or activities of the types included in the Annex to this Act to apply for approval within a specified period of time, no matter whether they are extended or modified or not.

37. (1) Existing enterprises, plants or activities of the types included in the Annex of this Act may apply for approval under the provisions of this Part.

(2) The Minister for the Environment may restrict the possibility to apply for approval under subsection (1) of this section to specified enterprises of the types included in the Annex to this Act.

38. (1) The Minister for the Environment may order individual enterprises, plants or activities, whether in the Annox or not, to apply within a specified period of time for approval as mentioned in sections 35-36 of this Act, if the need for closer examination of the state of pollution is deemed to be of special importance.

39. (1) Decisions of approval pursuant to sections 35-38 of this Act shall be made by the local council or the regional council, in the Copenhagen area by the Greater Copenhagen Council. The Minister for the Environment may issue detailed regulations on this subject after negotiations with the local organizations.

(2) Where local council enterprises are involved, the decision of approval shall be made by the regional council, or, in the Copenhagen ares, by the Greater Copenhagen Council. Where a regional council enterprise or a Greater Copenhagen Council enterprise are involved, the decision on approval shall be made by the local council of the area in which the enterprise is situated.

4o. (1) Applications for approval under sections 35-38 of this Act shall be accompanied by the plans, drawings and descriptions required to evaluate the project, and by an indication of the nature and scope of the actual or anticipated pollution. Information shall be given about measures to be adopted to reduce the pollution.

(2) Applications shall be submitted to the local council.

41. (1) Approvals as mentioned in sections 35-38 of this Act shall state the grounds for approval, including the location of the enterprise, plant or activity on the property and information supplied about the anti-pollution measures envisaged by the enterprise.

(2) The approval shall state the terms and conditions stipulated for the establishment and operation of the enterprise.

(3) Where waste water from the enterprise, plant or activity shall be discharged directly into watercourses, lakes or the sea, the question of a licence shall be dealt with at the same time as the decision of approval according to this Part. The terms and conditions of the discharge of waste water shall also be determined according to the regulations of this Part.

(4) The approval may be temporary.

42. (1) In case of violation of the conditions of an approval, cf. sections 35-38 of this Act, the authority issuing the approval may prohibit the continued operation of the enterprise, plant or activity.

43. (1) The Minister for the Environment may issue detailed regulations on the approval system.

44. (1) Where enterprises, plants or activites of the types included in the Annex to this Act result in pollution considered to be of significant importance, the supervision authority, cf. section 48 of this Act, may order the adoption of anti-pollution measures.

(2) Where anti-pollution measures cannot be taken, or where orders pursuant to subsection (1) hereof are violated, the supervision authority may prohibit the continued operation of the enterprise, plant or activity, or demand the enterprise, plant or activity to be removed.

(3) Where the pollution gives rise to imminent and serious health risks, prohibition may be issued immediately.

(4) In eight years following issuing of an approval under sections 35-38 of this Act, an order or prohibition can only be issued, if

1) new information has come forward regarding the harmful effects of the pollution in question,
2) the pollution causes environmental damages which could not be foreseen when the approval was issued,

3) the pollution otherwise considerably exceeds the conditions of the approval.

(5) After a period of not less than eight years after the approval was granted, the supervision authority may change the approval conditions for reasons of environmental protection or if better cleaning procedures or less polluting production methods have been developed.

(6) For specified industrial branches the Minister may issue regulations reducing the time limit fixed in subsections (4) and (5) hereof, to not under four years.

44a. (1) The supervision authority may revise the conditions of approval or of a licence granted to an enterprise, in order to improve the enterprise's control of its own pollution (internal control), or in order to improve the efficiency of supervision activities. Conditions laid down in orders may be similarly revised.

Part VI

National Agency of Environmental Protection

45. (1) The National Agency of Environmental Protection shall act as adviser to the Minister for the Environment and other authorities in questions of environmental protection.

(2) The National Agency of Environmental Protection shall submit recommendations to the Minister for the Environment about the issue of regulations pursuant to the provisions of sections 4-9 of this Act. The National Agency of Environmental Protection shall collect information on the state of pollution in the different areas of Denmark, and direct the attention to the emergence of new sources of pollution. The National Agency of Environmental Protection shall collect information on the state of knowledge in the field of environmental protection at any time and about considerations in other countries with a view to pollution control.

(3) The Minister may delegate the power to make decisions according to this Act and other acts to the National Agency of Environmental Protection. The Minister may issue regulations on the right to complain against decisions made by the National Agency of Environmental Protection, and to the effect that the final administrative decision shall rest with the National Agency, cf. however, section 76 of this Act.

(4) The Minister may authorize the National Agency of Environmental Protection to exert the powers pursuant to sections 4-9 of this Act.

46. (1) (Repealed).

47. (1) (Repealed).

Part VII.

Supervision.

48. (1) The local council shall see to it that:

1) this Act and regulations issued under this Act, be observed,
2) decisions to issue orders or prohibitions, be complied with,
3) conditions laid down in connection with approvals and licences be observed.

(2) The Minister for the Environment may decide that supervision shall in certain cases be exerted by other authorities.

(3) Supervision of enterprises listed in the Annex to this Act shall be exerted by the approval authority, cf. section 39 of this Act.

49. (1) If an order or a prohibition is not complied with within the specified time,the authority exerting supervision under section 48 of this Act (supervision authority) may have the measures carried out at the account of the responsible party.

(2) In case of imminent and serious health risks, and where immediate intervention is necessary to avert considerable pollution or spreading of pollution, the supervision authority shall take the required measures without issuing orders, and at the account of the responsible party.

(3) In case of significant pollution risks, the police shall assist the supervision authority in the exercise of powers under subsections (1) and (2) hereof. After negotiations with the Minister for the Environment, the Minister of Justice may lay down detailed rules on this matter.

(4) The provisions of subsections (1-3) hereof shall apply similarly to the supervision authority's order to terminate illegal operations or matters.

49a. (1) (Repealed).

50. (1) The supervision mentioned in sections 48 and 49 of this Act shall lie with the regional council as far as the enterprises, plants, or activities operated by the local councils are concerned. Where the enterprises, plants, or activities are operated by a regional council or the Greater Copenhagen council, the supervision shall lie with the local council of the municipality in which the enterprise, plant or activity is situated.

(2) The tasks and powers vested in the regional council in accordance with the provisions of this Part shall in the Copenhagen area be discharged by the Greater Copenhagen Council.

50a. (1) Where the supervision authority becomes aware of illegal

activities etc., it shall have them terminated, unless the matter is quite insignificant.

(2) Where a polluting enterprise was commenced without prior approval or licence or in contravention of current prohibitions or conditions laid down, the supervision authority may, where appropriate, require that the enterprise, plant or activity be removed.

51. (1) The local council, the regional council, the National Agency of Environmental Protection, or persons authorized by them to make investigations, and the Public Health Officer involved shall have access to public and private properties in order to obtain information relevant to decisions under this Act or regulations issued under the provisions of this Act.

(2) The police shall assist in carrying out this provision according to regulations laid down after consultation between the Minister for the Environment and the Minister of Justice.

(3) Proof of identity shall be produced on request.

52. (1) At the request of the local council, regional council or the National Agency of Environmental Protection, the party responsible for activities likely to cause pollution shall produce all information, including data on economy and accounts, relevant to the evaluation of the pollution and to the choice of possible anti-pollution measures.

(2) The local council, the regional council or the National Agency of Environmental Protection may order the party in question to submit samples of material etc. used or processed by him, and of waste products, if any.

53. (1) Parties responsible for activities likely to cause pollution shall immediately notify the supervision authority when interruption of operations or accidents result in heavy pollution or pollution risks.

(2) Notification under subsection (1) hereof shall not reduce the obligation of the responsible party to effectively prevent interruption of operations or the accident.

54. (1) On request, the local councils and the regional councils shall supply the Minister for the Environment with all information relevant to the evaluation of the state of pollution within the local and regional areas in question.

(2) On request, the local councils shall supply the regional council with all information relevant to the evaluation of the state of pollution within the local area in question.

55. (1) The regional council shall supervise the state of pollution in watercourses, lakes and nearshore territorial waters. Moreover, the regional council shall observe whether existing environmental protection provisions are observed, and in case of non-observance inform the relevant authority hereof.

56. (1) The Minister for the Environment shall lay down detailed rules on the discharge of the supervision functions by the supervision authority and the National Agency of Environmental Protection, including the role of Public Health Officers and the Fishery Control in these functions.

56a. (1) The Minister for the Environment may lay down rules on notification of enterprises.

57. (1) The Minister for the Environment may order the regional councils or the local councils to consider and to decide questions, including specific cases, concerning environmental protection.

58. (1) The regional council shall take part in the co-ordination of municipal functions pursuant to this Act, and pursuant to regulations issued under the provisions of this Act within major areas, including compact built-up areas, along watercourses, beaches, road systems, and round air ports, and in organizing common waste water plants, purification plants,

incineration plants, landfill sites etc.

Part VIII

Laboratories.

59. (1) In plans for the laboratories within an area to be worked out by the regional council or the Greater Copenhagen Council pursuant to Act on Food etc., provisions based on proposals made by the local councils shall lay down the extent to which these laboratories are to carry out laboratory work relating to environmental questions for the use of the administration of work of the local and regional councils and of the Greater Copenhagen Council pursuant to this Act or pursuant to regulations issued under the provisions of this Act.

60. (1) The Minister for the Environment may authorize private laboratories to carry out specified laboratory work pursuant to this Act.

(2) Authorized laboratories shall use the charges, methods and working directions issued by the Minister.

(3) The Minister may lay down specific regulations on the authorization system.

Part IX

Surveying and Planning.

61. (1) The local council shall survey the noise pollution within the urban zones of the municipalities. The regional council shall make a similar survey of the noise pollution in the areas outside the urban zones. The surveys of the local councils and the regional council shall be co-ordinated and comprised by the regional council in a total survey of the noise pollution within the regional area.

(2) The survey pursuant to subsection (1) hereof shall include the registration of the individual noise sources within the local or regional areas and an assessment of the noise pollution to which the surroundings are exposed.

61a. (1) Assisted by the local councils the regional council shall make a survey of the state of pollution and the pollution load from the individual pollution sources in watercourses, lakes and nearshore territorial waters.

61b. (1) After negotiations with the local and regional organizations the Minister for the Environment may issue further regulations on the survey pursuant to sections 61 and 61a of this Act and on the implementation of the survey.

61c. (1) After negotiations with the local and regional organizations the Minister for the Environment may lay down regulations stipulating that with the assistance of the local councils the regional councils shall make a survey of the air pollution including a survey of the pollution sources and an assessment of the air quality. The Minister may issue further regulations on the survey and the implementation of the survey.

61d. (1) The survey under sections 61, 61a, and 61c of this Act shall serve to support the planning according to this Part and the regional and local planning.

61e. (1) On the basis of the survey pursuant to section 61a of this Act the regional council shall after negotiations with the local councils prepare a plan for the quality of the waters within the regional area. This recipient quality plan shall contain:

1) objects for the quality of water in watercourses, lakes, and nearshore territorial waters,
2) an account of the conditions of existing and future discharges of waste water on which the objects stated are based,

3) an indication of period of time within which the objects fixed and the consequential quality requirements should be fulfilled, and
4) the evaluation by the regional council of the economic consequences of the plan.

(2) Before the recipient quality plan is adopted, it shall be submitted to the local councils involved by the regional council. Where a local council raises objections within a time limit fixed by the Minister for the Environment with a view to the effects of the plan on the localarea in question, the regional council cannot make a final adoption of the plan before agreement has been reached between the local council and the regional council regarding the necessary changes of the plan. Where agreement cannot be reached, the matter shall be settled by the Minister for the Environment.

(3) The recipient quality plan shall not conflict with regional planning.

(4) The recipient quality plan shall form the basis for the administration of cases under the Environmental Protection Act.

61f. (1) On the basis of the survey under sections 61, 61a, and 61c of this Act the regional council shall after negotiations with the local councils prepare plans for the location of enterprises etc. for which special location requirements must be met to prevent pollution. The plans shall include areas for industrial plants and supply plants, and for waste water plants and establishments for storage and treatment of waste products.

(2) The plan referred to in subsection (1) hereof shall consider the vulnerability of the environment when exposed to pollution, the possible future applications of the individual areas, and the social need for the location of the enprises within the area.

(3) The plans shall not conflict with regional planning.

(4) The plans shall form the basis for the administration of cases under the Environmental Protection Act from the time when it has been included in the guidelines in an approved regional plan or an approved schedule to the regional plan.

61g. (1) The Minister for the Environment may issue further regulations, according to which the regional councils shall as part of the regional planning prepare preliminary surveys and evaluations of the environmental consequences in connection with the establishment of a large separate plant. The Minister may include regulations stipulating that an evaluation shall be made of the various locating possibilities for such plants.

(2) Regulations laid down by the Minister for the Environment pursuant to subsection (1) hereof may include provisions to the effect that the party seeking to have established a plant as the one mentioned in subsection (1) hereof shall on request assist the regional council in implementing the surveys and evaluations.

Waste.

62. (1) In co-operation with the local councils the regional council shall make a survey of the disposal of waste within the regional area. The survey shall include a registration of collection, transportation, treatment, and final disposal, including recycling, of waste. On the basis of the survey the regional council shall after negotiations with the local councils prepare a report on the disposal of waste within the regional area.

(2) After negotiations with the local and regional organizations the Minister for the Environment may lay down further regulations on the tasks of the regional councils and the local councils pursuant to subsection (1) hereof.

62a. (1) After negotiations with the regional council the local council shall prepare a plan for disposal of waste within the local area. The plan shall contain information on:

1) existing and planned schemes for collection, transportation, treatment, and final disposal, including recycling, of the waste,
2) delimination of the areas from which the waste is carried to the individual treatment and deposit plants,
3) objectives of the distribution of the waste on various treatment and disposal methods,
4) the time for the introduction of the various schemes planned, and
5) costs and financing in connection with implementation of the plan.

(2) The Minister for the Environment may decide that the planning under subsection (1) hereof shall be based on specified conditions and the Minister may lay down regulations to this effect.

(3) The Minister for the Environment shall lay down rules on local waste schemes, including schemes for collection of industrial waste, garden waste and construction waste etc., and

1) rules on the duty of local authorities to point out disposal facilities to be used by enterprises which are not covered by such waste schemes,
2) rules on the duty of enterprises to use the existing schemes or disposal facilities pointed out by the local authorities,
3) rules on the obligation to set up pre-sorting plants in landfill sites and incineration plants.

(4) The Minister may decide or lay down rules that local authorities shall establish or join inter-municipal plants dealing with waste disposal, and on the location of such

inter-municipal plants.

(5) Charges may be fixed to cover the local authorities' expenses in relation to waste mapping and planning, to waste schemes, and to the schemes and plants referred to in subsections (3) and (4) hereof.

62b. (1) The plans in pursuance of section 62a of this Act shall not conflict with the regional planning, with instructions laid down by the Minister for the Environment under subsection (2) of section 62a of this Act, or with the regulations issued by the Minister for the Environment on collection of reusable materials and products in pursuance of Act on the Reuse of Paper and Drink Packagings and the Reduction of Waste. (Present title: Act on Recycling and Reduction of Waste).

(2) The regional council shall ensure that the local waste plans are in accordance with the planning, the guidelines, and the regulations mentioned in subsection (1) hereof, and the council shall relate the contents of the plans to the report mentioned in subsection (1) of section 62 of this Act.

(3) Where the regional council raises objections under subsection (2) hereof within a time limit fixed by the Minister for the Environment, the local council cannot adopt the plans finally until agreement has been reached between the local council and the regional council on the necessary changes of the plans. In case of dispute, the matter shall be settled by the Minister for the Environment.

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62c. (1) After negotiations with the local and regional organizations the Minister for the Environment may lay down further regulations on the contents of the planning pursuant to sections 61e, 61f and 62a of this Act, and regulations on time limits and procedures in connection with preparation and revision of the plans including regulations on the connection with regional and local planning.

62d. (1) The powers vested in the regional council in pursuance of the provisions of the present Part of this Act shall in the metropolitan area be vested in the Greater Copenhagen Council.

63. (1) The Minister for the Environment may decide that any two or more regional councils, or one or more regional councils together with the Greater Copenhagen Council, shall jointly initiate studies, and how the expenses incurred shall be shared.

64. (1) (Repealed).

Part X

Decisions in Matters of Environmental Protection.

65. (1) Decisions made by the local council, regional council or the Greater Copenhagen Council shall be notified in writing to the parties responsible for the activities in question, cf., however, subsection (4) of section 11 of this Act. In case of imminent and serious danger to health, and when immediate intervention is necessary to avert considerable pollution or spreading or pollution, decisions as to orders or prohibitions may be given orally. An oral decision shall be notified in writing as soon as possible.

(2) The decision shall at the same time be communicated in writing to the Public Health Officer involved and to other authorities involved. Furthermore, the decision shall be communicated in writing to private persons likely to have an individual, significant interest in the decision, and to organizations entitled to complain pursuant to subsections (2 - 5) of section 74 of this Act. If necessary, communication to the above mentioned private persons and organizations may be made by public announcement. Where approval is issued under sections 35-38 of this Act, public announcement shall always be made.

65a. (1) A decision notified in writing shall indicate the main considerations underlying the decision. An account shall be given in connection with communication under subsection (2) of section 65 of this Act.

66. (1) Decisions made by the local council, regional council or the Greater Copenhagen Council shall specify the authority of appeal, and the time within which the appeal must be brought.

67. (1) Where the decision includes an order or a prohibition, a time limit shall be stipulated for compliance with the decision. Where immediate intervention is necessary pursuant to subsection (1) of section 65 of this Act, it may be decided that the decision shall be complied with immediately.

68. (1) Prior to an order or a prohibition, the party to whom such decision is directed shall be notified in writing about the case and informed about the right to acquaint himself with the documents of the case and to give statements according to the Act on Public Access to Documents in Administrative Files. In this connection the party to whom such decision is directed should be asked to contribute information to explain costs, advantages and disadvantages of the decision.

(2) Notification pursuant to subsection (1) of this section may be omitted in cases where immediate decision is required, or where notification is deemed to have no importance.

68a. (1) The provisions of section 67 and subsection (1) of section 68 of this Act shall not apply to notification involving a ban on activities in contravention of current prohibition rules, on activities commenced without prior approval or licence, or to notifications to the effect that previously made decisions shall be implemented.

69. (1) (Repealed)

69a. (1) The Minister may on his own initiative decide to consider more closely a decision made by a local council, a regional council, or the Greater Copenhagen Council. This shall also apply to decisions made by the National Agency of Environmental Protection which cannot be appealed to the Environmental Appeal Board, cf. section 76 of this Act. The Minister may decide that a decision which normally would have been made by the National Agency of Environmental Protection in pursuance of section 7o of this Act shall be made by the Minister.

69b. (1) The Minister for the Environment may delegate his powers to make decisions in connection with questions of environmental protection to the Greater Copenhagen Council, the regional councils and the local councils.

69c. (1) In specific matters of far-reaching importance the Minister for the Environment may decide that decision in pursuance of this Act shall be made by the Minister and not by the Greater Copenhagen Council, the regional council, or the local council.

Part XI

Complaints.

7o. (1) Complaints against decisions made by the local council, regional council and the Greater Copenhagen Council pursuant to this Act or to regulations issued under the provisions of this Act may be made to the National Agency of Environmental Protection, however, cf. subsection (3) of section 5, subsection (5) of section 11, subsection (7) of section 21, and subsection (8) of section 27 of this Act.

71. (1) The time limit for lodging a complaint shall be four weeks from the day on which the decision was notified. In the case of public announcement the time limit shall be from the day of the announcement notwithstanding the time of any individual notification, cf. section 65 of this Act. If the time limit expires on a saturday or a holiday, the limit shall

expire on the following workday.

72. (1) A complaint shall have suspensive effect upon the order or prohibition until the decision of the appeal authority is available or until otherwise decided by the appeal authority.

(2) In special circumstances, the authority issuing the order or prohibition may decide that the order or the prohibition shall be complied with irrespective of complaints. Even when a complaint is lodged against such decision, the order or prohibition shall be complied with until otherwise decided by the appeal authority.

(3) Where the use of an approval or a licence granted in pursuance of this Act or orders issued under this Act involves building and construction activities, such activities shall not be commenced before the limit for lodging the complaint has expired in accordance with subsection (1) of section 71 of this Act, unless the authority issuing the licence or approval grants an exemption from this rule.

(4) In connection with its consideration of an approval or a licence, against which a complaint was lodged within the limit specified, cf. section 71 of this Act, the appeal authority may by itself decide the question of commencement of building and construction works. In this connection the appeal authority may

1) at request permit commencement of building and construction works,
2) decide that building and construction works, for which an exemption was granted under subsection (3) hereof, shall not be commenced or shall be suspended.

The decision of the appeal authority cannot be brought before a higher administrative authority.

(5) The Minister for the Environment may lay down regulations stipulating that subsections (3) and (4) hereof shall

not apply to certain types of small scale building and construction activities in connection with licence granted according to rules issued under Parts II, III, and IV of this Act.

(6) The provisions of subsections (3-5) of this Act shall not restrict the powers of the appeal authority to modify or withdraw licences or approvals against which complaints have been lodged.

73. (1) Complaints shall be submitted to the authority responsible for the decision. This authority shall submit the complaint to the appeal authority accompanied with the material on which the decision is based.

74. (1) Complaints against the decisions of a local council, regional council or the Greater Copenhagen Council may be made by:

1) the party to whom the decision is directed,
2) the Public Health Officer involved,
3) any party likely to have an individual, significant interest in the outcome of the decision.

(2) The Danish Society of Nature Conservation may lodge complaints against:

1) decisions on approvals, orders and prohibitions in pursuance of Part V of this Act as regards enterprises, plants and activities where the powers to grant a licence under regulations laid down in pursuance of subsection (1) of section 39 of this Act are vested in the regional council or the Greater Copenhagen Council,
2) decisions on approvals, orders and prohibitions in pursuance of Part V of this Act as regards enterprises, plants and activities where the powers to grant a licence under regulations laid down in pursuance of subsection (1) of section 39 of this Act are vested in the local council in accordance with rules laid down by the Minister for the Environment.

3) decisions under Part IV of this Act on separate discharge of waste water from the enterprises, plants and activities covered by the above No. 1 hereof, and
4) decisions under Part IV of this Act on the discharge of waste water from the waste water plant of a local authority.

(3) The Danish Angling Society may complain against the decisions mentioned in subsection (2) hereof as far as matters of water pollution are concerned.

(4) The Danish Sea Fisheries Association and the Danish Fisheries Association may complain against decisions mentioned in subsection (2) hereof as far as matters of marine pollution are concerned.

(5) The Economic Council of the Danish Labour Movement may complain against decisions made by a local council, a regional council, and the Greater Copenhagen Council when it is of considerable importance to the employment situation.

(6) The Danish Consumer Advisory Council may complain against decisions made by a local council, a regional council, and the Greater Copenhagen Council to the extent that they are of considerable and principle importance.

(7) The Greater Copenhagen Council or a regional council may complain against decisions made by a local council. A local council may complain against decisions made by a regional council. A local council or a regional council may complain against decisions made by the Greater Copenhagen Council.

(8) The Minister for the Environment may lay down regulations or decide that complaints against decisions under this Act may be filed by specified authorities in other countries.

Part XII

Environmental Appeal Board.

75. (1) The Environmental Appeal Board shall act as authority of complaint in respect of administrative decisions to the extent defined in this Act and in other legislation on environmental questions.

(2) In its activities, the Board is independent of any instructions relating to the consideration of and decisions in individual cases.

76. (1) Complaints may be made to the Environmental Appeal Board against decisions made by the National Agency of Environmental Protection pursuant to subsection (1) of section 14, and Part V, or by the Minister for the Environment pursuant to section 69a and decisions made in accordance with regulations laid down in pursuance of subsection (9) of section 21 of this Act. The same shall apply to decisions made pursuant to sections 18 and 25 of this Act when relating to the waste water plant of a local authority or of an industrial enterprise.

(2) Complaints may moreover be made to the Environmental Appeal Board against decisions made by the Minister acting as first instance pursuant to section 15, cf. subsection (1) of section 14,or section 69c of this Act. The same shall apply to decisions made pursuant to subsections (1) and (3) of section 11 of this Act when relating to the discharge of waste water on the soil from an industrial enterprise, and decisions made pursuant to section 34, cf. sections 18 and 25 of this Act when relating to the waste water plant of a local authority or of an industrial enterprise.

(3) In regulations issued pursuant to the provisions of this Act, the Sulphur etc. in Fuel Act, or the Act on Oil and Chemical Waste, it may be resolved that complaints against decisions made by the Minister or the National Agency of En-

vironmental Protection pursuant to the above regulations may be made to the Environmental Appeal Board.

77. (1) The Environmental Appeal Board shall consist of a Chairman, one or more deputies and a number of appointed expert members.

(2) The administration of the board shall be carried out by a secretariat also assisting in the consideration of questions brought before the Board. Besides the Board may call in experts to act as advisors.

(3) The Minister for the Environment may lay down detailed regulations on the activities of the Environmental Appeal Board, including the consideration of cases and fees for the presentation of cases.

78. (1) The Chairman of the Environmental Appeal Board shall have the qualifications of a High Court Judge. The Chairman's deputies shall have the qualifications of a Judge. The field of employment of the Chairman and deputies shall be the Environmental Appeal Board only.

(2) The number of members appointed shall be fixed by the Minister for the Environment. The members shall be appointed by the Minister for terms of up to four years on the joint recommendation of

1) The Federation of Danish Industries, the Economic Council of the Danish Labour Movement, The Federation of Smaller Industries, the Agricultural Council, the Federation of Danish Agricultural Societies, the Federation of Danish Smallholders' Societies,
2) The National Agency of Environmental Protection.

79. (1) Decisions in each individual case shall be made by the Chairman or a deputy and 2 or 4 appointed members. The appointed members shall be designated by the Chairman with equal representation of the two groups mentioned in subsec-

tion (2) of section 78 of this Act. In cases of particular interest to the fishing industry, a fisheries expert shall be among the persons designated. In cases of particular importance to the employment situation, an expert appointed in pursuance of subsection (2) of section 78 on the recommendation of the Economic Council of the Danish Labour Movement shall be among the persons designated. In cases concerning smaller industries an expert appointed in pursuance of subsection (2) of section 78 of this Act on the recommendation of the Federation of Smaller Industries shall be among the persons designated.

(2) Decisions of the Environmental Appeal Board shall be made by majority vote.

(3) In special cases the Chairman or the deputy chairman may make decisions on behalf of the Board.

80. (1) Complaints to the Environmental Appeal Board may be made by:

1) the party to whom the decision is directed,
2) any party likely to have an individual and significant interest in the outcome of the case, and
3) the Greater Copenhagen Council, the interested regional council or local council.

(2) Organizations entitled to lodge complaints in pursuance of subsections (2-6) of section 74 of this Act shall have the right to complain both to the Environmental Appeal Board and to the National Agency of Environmental Protection.

(3) The Minister for the Environment may issue regulations or decide that complaints against decisions according to this Act may be made to the Environmental Appeal Board by specified authorities in other countries.

81. (1) The time limit for lodging a complaint shall be 4 weeks from the day on which the decision was notified. Third clause of section 71 shall apply similarly.

(2) A complaint shall have suspensive effect upon an order or prohibition unless otherwise resolved by the Board, cf., however, subsection (2) of section 72 of this Act.

82. (1) The Environmental Appeal Board may make inspections and procure information according to sections 51-52 of this Act.

Part XII a

Waste Charges.

82a. (1) A charge is payable to the Minister for the Environment on waste delivered to enterprises liable to registration, cf. section 82c of this Act.

82b. (1) The charge amounts to 4o,- D.Kr./ton of waste. The chargeable weight is the gross weight of the waste.

(2) The chargeable weight shall be determined by a weighing machine which can be approved by the customs authorities.

82c. (1) Enterprises or plants receiving waste from local waste collection schemes, for the purpose of deposit or incineration, shall notify the customs authorities and be registered.

(2) A certificate of registration is issued and given to the registered enterprises.

82d. (1) Charges are payable quarterly.

(2) Registered enterprises shall calculate the chargeable weight for a given charge period on the basis of the waste volumes delivered to the enterprise in that period.

(3) From the calculated weight shall be deducted the weight of the chargeable waste which was taken out of the enterprise in the period in question. If the weight of the withdrawn waste exceeds the chargeable weight in that period, the excess weight shall be carried over and deducted in subsequent

(4) The Minister for Inland Revenue, Customs and Excise may lay down detailed rules on calculations in accordance with subsection (2) and deductions in accordance with subsection (3) hereof.

82e. (1) Registered enterprises shall keep accounts of input and output of waste.

(2) The customs authorities shall lay down detailed rules on calculation vouchers and invoices drawn up by registered enterprises, and on their keeping of accounts.

(3) Registered enterprises shall keep accounting material, including calculation vouchers, copies of invoices and specifications, for five years following an accounting year.

82f. (1) Registered enterprises shall after the expiry of a charge period and not later than the 15th day of the following month, inform the customs authorities of the weight of waste for which the enterprise must pay a charge, cf. subsections (2) and (4) of section 82d of this Act.

(2) Where such information is not given within the limit specified in subsection (1) hereof, the customs authorities may suspend registration of the enterprise until the information has been given to the customs authorities.

82g. (1) The charge relating to a charge period shall be paid to the customs authorities before the end of the month following the expiry of the charge period.

(2) Where the charge is not paid in time, 1.3 per cent interest/month shall be paid for each commenced month following the last payment in time, but not below 10,- D.Kr.

(3) The Minister for Inland Revenue, Customs and Excise may lay down detailed rules on payment of charges.

82h. (1) The customs authorities may order enterprises not paying in charges in time to give the information specified in section 82f of this Act for shorter periods than three months.

(2) The customs authorities can also order enterprises not paying in charges in time to observe shorter payment deadlines than specified in subsection (1) of section 82g of this Act, and require that security be given for payment of the charge.

82i. (1) Where charges due are not paid on the 14th day at the latest after the expiry of the time for payment, the customs authorities may suspend registration of the enterprise until charges due have been paid.

(2) Where the charge period or payment time were shortened according to section 82h of this Act, and the charge is not paid in time, the registration may be withdrawn at the expiry of the payment time.

82j. (1) Where an enterprise is found to have given faulty information under section 82f of this Act, and has, thus, not paid enough charges, the amount due shall be paid not later than two weeks after a notice requiring payment has been given.

(2) If the amount of charges to be paid by the enterprise cannot be calculated on the basis of the enterprise's accounts etc., the customs authorities may estimate the charges due. When such estimates are made, the right to complain specified in subsection (3) hereof shall be mentioned.

(3) The enterprise may bring in the estimate of charges due before a board set up under section 37 of the General Sales Tax Act. Requests for bringing in cases before the board shall be made to the customs authorities within four weeks from the date the enterprise was informed of the estimate.

(4) Where the charges due are not paid in time, 1.3 per cent interest/month shall be paid for each commenced month starting on the first day of the month in which the amount was to be paid by the enterprise, but not below 10,- D.Kr.

82k. (1) The customs authorities shall any time and on proof of identity without court order have access to the enterprise liable to register, to review the account books and other book-keeping material, and correspondence etc.

(2) The party responsible for an enterprise liable to register, and persons working in the enterprise, shall guide and assist the customs authorities as required in their discharge of supervision activities under subsection (1) hereof.

(3) The material referred to in subsection (1) hereof shall at the request of the customs authorities be delivered or sent to the customs authorities.

(4) Persons and enterprises delivering waste to enterprises liable to register shall at request inform the customs authorities of the waste quantities they have delivered.

(5) Persons and enterprises receiving waste from enterprises liable to register shall at request inform the customs authorities of the waste quantities they have received.

(6) The party responsible for an enterprise or plant which although not registered,cf. section 82c of this Act,received waste for the purpose of deposit, incineration, processing or other treatment, shall at request inform the customs authorities of waste quantities received.

(7) The customs authorities are entitled to inspect the accounts etc. of the enterprises referred to in subsections 4-6 hereof.

82l. (1) Public authorities shall at request give the customs authorities the information required for registration and

control of enterprises liable to register.

(2) The police shall assist the customs authorities in carrying out control functions. After negotiations with the Minister for Inland Revenue, Customs and Excise, the Minister of Justice may lay down detailed rules thereon.

(3) The Minister for Inland Revenue, Customs and Excise may lay down regulations on control measures required to implement the charge provisions of this Part.

82m. (1) The board set up in pursuance of section 37 of the General Sales Tax Act shall make the final administrative decision in connection with:

1) questions of enterprises' duty to register, cf. section 82c of this Act,
2) questions of the chargeable weight, cf. section 82b of this Act, and of the duty to pay charges,
3) complaints against estimates of chargeable amounts, cf. subsection (2) of section 82j of this Act.

82n. (1) Responsible for payment of charges under the provisions of this Part are the party owning, leasing or otherwise operating the enterprise on his own account.

Part XIII

Provisions Regarding Penalty and Commencement etc.

83. (1) Unless heavier punishment is due pursuant to other legislation, offenders of the following provisions are liable to a fine:

1) violation of subsection (1) of section 11, or subsection (1) of section 17 of this Act,
2) failure to comply with orders or prohibitions pursuant to section 12; subsections (1) or (4) of section 13; subsection (1) of section 14; section 25; section 42, section 44 or subsection (2) of section 5oa of this Act,

[illegible] of terms of a license according to subsection

(1) of section 11; subsection (2) of section 17; section 18, or of approval according to sections 35-38 of this Act,

4) establishment, commencement or operation of enterprises without approval according to section 35 of this Act,

5) failure to obtain approval according to sections 36 or 38 of this Act,

6) failure to provide information or submit samples according to section 52 or to give notification as mentioned in section 53 of this Act,

7) failure to submit notification stipulated in regulations laid down under section 56a of this Act,

8) carrying out of building or construction activities in contravention of subsection (3) of section 72 or a decision under subsection (4) of section 72 of this Act, or

9) disregard of terms of an exemption pursuant to subsections (3) or (4) of section 72 of this Act.

(2) The punishment may be detention or imprisonment for up to one year if the offender acted deliberately or by gross negligence or if the infringement resulted in

1) damage to the environment or risk of damages,

2) achieved or intended economic advantages , including savings, for the offender or for others.

(3) Regulations issued pursuant to section 4, 4a, 5, 6, 9; subsection (2) of section 11; subsection (2) of section 17; subsection (2) of section 19; sections 20 and 28; subsection (3) of section 62a of this Act may specify punishment of fine. The penalty may be detention or imprisonment for up to one year under the same conditions as those specified in subsection (2) hereof.

(4) As regards violations committed by limited liability companies, co-operative societies or the like, the company or society as such may be held liable to pay fine. If the violation was committed by a local authority or authorities jointly, cf. section 60 of Local Administration Act, the

local authority or authorities jointly may be held liable to pay the fine.

(5) Where profits obtained by violation of this Act or regulations issued under this Act, are not confiscated, the fine, including additional fines, shall be meted out with special regard to the extent of the achieved or intended economic advantages, cf. No. 2 of subsection (2) hereof.

(6) Liability to punishment for infringements etc. as specified in Nos. 1, 2, 3, and 4 of subsection (1) hereof, and for infringements of regulations issued under subsection (2) of section 11 of this Act, is statute-barred after 5 years.

84. (1) Violations are subject to police prosecution. The remedies contained in Parts 72 and 73 of the Administration of Justice Act may be applied as in actions brought by the public prosecutor.

84a. (1) Anyone who deliberately or by gross negligence commits one of the following offences is liable to a fine:

1) provides faulty or misleading information or withholds information for use in connection with control of the charges specified in Part XIIa of this Act,
2) fails to use a weighing machine which can be approved by the customs authorities, cf. subsection (2) of section 82b of this Act,
3) fails to register with customs authorities in accordance with section 82c of this Act,
4) fails to keep and store accounts in accordance with subsections (1) and (3) of section 82e of this Act,
5) fails to state the weight of chargeable waste in accordance with subsection (1) of section 82f of this Act,
6) fails to comply with an order given in accordance with subsection (1) of section 82h of this Act,
7) fails to give information to the customs authorities in accordance with subsections (2-6) of section 82k, of this

8) continues operation of an enterprise liable to register afte the customs authorities have withdrawn registration in accordance with subsection (2) of section 82f, or section 82i of this Act.

(2) Regulations issued pursuant to subsection (3) of section 82l of this Act may specify punishment of fine to anyone who deliberately or by gross negligence violates the rules.

(3) Anyone committing the violations specified in subsections (1) and (2) hereof deliberately for the puroose of evading to pay charges, is liable to fine, detention or imprisonment for up to one year.

(4) Where the violations referred to in subsections (1) and (2) hereof are committed by limited liability companies, co-operative societies or the like, the company or society as such may be held liable to pay the fine. If the violation was committed by a local authority or authorities jointly, cf. section 6o of Local Administration Act, the local authority or authorities jointly may be held liable to pay the fine.

84b. (1) Where one of the violations referred to in subsections (1) and (2) of section 84a of this Act is considered not to cause a penalty severer than fine,the Minister for Inland Revenue, Customs and Excise or anyone he authorizes thereto, may notify the offender in question that the matter can be closed without legal proceedings if he accepts responsibility for the violation and declares ready within a specified period, which can be prolonged at request, to pay a specified fine.

(2) As regards the notification mentioned in subsection (1) hereof the provisions of the Administration of Justice Act on indictments by police prosecution shall apply similarly.

(3) If the fine is paid in time, or is afterwards recovered

through the courts or served in prison, further prosecution ceases.

(4) Where the violations referred to in subsections (1) and (2) of section 84a of this Act, are brought before the court, they are subject to police prosecution. The remedies contained in Part 73 of the Administration of Justice Act may be applied as in actions brought by the public prosecutor.

85. (1) Authorities and persons performing duties under this Act, and any other person who, otherwise, assists herein, shall be under an obligation not to divulge confidential matters in pursuance of sections 152 and 264b of the Civil Penal Code.

86. (1) The question of possible payment of compensation as a result of pollution of ground water or watercourses, lakes or the sea shall be decided by the Land Tribunal provided the parties to the case agree on this procedure.

87. (1) In cases pursuant to this Act concerning enterprises, plants or activities owned or operated totally or partly by local authorities, regional authorities or the Greater Copenhagen Council, the Minister for the Environment may determine that decisions shall be made by him.

88. (1) The date of entry into force of this Act shall be fixed by the Minister for the Environment.

89. (1) The following legislative provisions are repealed:

1) Act of March 1o, 1852, on Trades Injurious to Health.
2) Act of January 12, 1858, on Sanitary Regulations.
3) Act of March 28, 1868, on Amendments to Act of January 12, 1858, on Sanitary Regulations.
4) Section 68 of Act No. 223 of May 31, 1968, on Local Administration, as amended by Act No. 125 of March 25, 197o.
5) Act of November 3o, 1857, on the Surrender of Land for

Water Discharge or Sewage Systems.

6) Sections 13 and 14 of Act of December 14, 1857, on Requirements relating to Streets, Roads and Watercourses in Copenhagen.

7) Act No. 123 of April 28, 19o6, on Admendments and Addenda to Regulations on Watercourses in Copenhagen contained in Acts of November 3o, 1857, and December 14, 1857.

(2) The Minister for the Environment shall be empowered to repeal Act No. 25 of January 3o, 1923, on Border Watercourses, and subsection (1) of section 4 of Act No. 195 of May 26, 1965 on Salt Water Fishing, as amended by section 13 of Act No. 285 of June 7, 1972.

(3) Unless otherwise decided, functions discharged by the Public Health Commission pursuant to other legislation shall be transferred to the local council.

9o-93. (Transitional provisions, omitted).

94. (1) Decisions made according to the provision of section 89 of this Act shall remain valid until other decisions are made pursuant to this Act or regulations issued under the provisions of this Act. Violation of such decisions shall be punished according to regulations in force before the entry into force of this Act.

95. (1) This Act shall not apply to the Faroe Islands and Greenland.

96. (Provision of revision, omitted).

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Act No. 2o4 of May 18, 1982 on Amendments to Act on Environmental Protection concerning sections 4a, 5, 8, 1o, 11, 21, 22, 25, 27, 28, 31, 33, 41, 46, 47, 49a, 5o, 53, 61, 62, 65, 67, 68, 69, 7o, 71, 72, 74, 76, 78, 79, 8o, 81, 83 and 84 contains the following provisions regarding commencement and transition:

2. (1) This Act shall come into force as from January 1, 1983.

(2) At the same date Act No. 12o of May 3, 1961, on the Extermination of Rats shall be repealed.

3. (1) Cases submitted to the Minister for the Environment pursuant to the provision of subsection (2) of section 7o of Act No. 372 of June 13, 1973, on Environmental Protection before the commencement of this Act shall be dealt with according to regulations so far in force.

(2) Nos. 27, 34, 37 and 43 of section 1 shall apply to decisions made after the commencement of this Act.

(3) Nos. 4o, 41 and 42 of section 1 shall apply in cases where the decision of the Environmental Appeal Board is made after the commencement of this Act.

(4) Further, the Minister for the Environment may lay down transitional regulations.

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Act No. 25o of May 23, 1984, Amending Various Environment and Planning Acts, in which section 1 applies to sections 49, 49a, 5oa, 53, 55, 68a, 69 and 83, contains the following provisions regarding commencement:

13. (1) This Act enters into force on August 1, 1984.

(2) (Omitted).

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Act No. 329 of June 4, 1986, Amending Environmental Protection Act, applying to sections 1, 39, 42, 44, 44a, 48, 49, 49a, 5o, 5oa, 56, 56a, 62a, 64, 65a, 71, 72, 74, 76, 8o, 81, 82a - 82n, 83, 84a, and 84b, contains the following provisions regarding

2. (1) This Act enters into force on January 1, 1987.

(2) However, the rules laid down in section 82c, second clause of subsection (4) of section 83 , No. 3 of subsection (1) and subsections (3) and (4) of section 84a, and section 84b of Environmental Protection Act, as reproduced in section 1, Nos. 27, 32 and 33 of this Act, enter into force on July 1, 1986.

(3) The Minister for the Environment may lay down transitional regulations.

Ministry of the Environment

1986

Christian Christensen

Erik Lindegaard

ANNEX

List of Enterprises, Plants and Activities to which Part V of the Environmental Protection Act applies:

A. Production and manufacture of iron, steel or metals.

1. Ironworks, steelworks and steel rolling mills. (a)
2. Iron foundries, steel foundries, non-ferrous metal foundries and refineries. (a)
3. Plants and enterprises engaged in surface treatment of iron, steel or non-ferrous metal work, including enterprises and plants engaged in surface treatment with paint or varnish in quantities exceeding 5 kg of paint and/or varnish per hour.
4. Plants and enterprises engaged in surface treatment of iron, steel or non-ferrous metal work with paint or varnish in quantities not exceeding 5 kg of paint and/or varnish per hour. (×)
5. Steelship yards.
6. Engine works and machine shops, the gross floorage of which exceeds 100 m².
7. Drop forgeries, tin goods factories, wire spinning mills.
8. Boiler shops, container and tube factories.
9. Electrotechnical enterprises, including cable factories and accumulator factories. (×)

B. Extraction and manufacture of lime, clay, stone, gravel, coal and similar products.

1. Cement works, lime works, mortar works, tile works, molerworks and enterprises engaged in the manufacture of clinkers or glazed pipes. (a)
2. Glassworks, glass wool and mineral wool factories.
3. Gravel works, stone crushing works, apart from plants located at the place of extraction, and enterprises engaged in the manufacture of road material or calcination of flint. (a)
4. Cement foundries and concrete mixing plants.
5. Enterprises manufacturing porcelain, faience and earthenware (including kaolin sliphouses), producing more than 200 kg/day.
6. Enterprises manufacturing plaster board, asbestos cement sheets, or other construction material mainly on the basis of mineral raw material.
7. Plants extracting or processing salt from the underground. (a)
8. Enterprises manufacturing gas concrete, breeze or sandlime bricks.

C. Treatment of mineral oil, mineral oil products, asphalt, natural gas and coal.

1. Mineral oil refineries. (a)
2. Enterprises engaged in processing and upgrading of natural gas. (a)

3. Gasworks and coking plants.
4. Plants engaged in mixing of asphalt and production of road material. (a)
5. Roofing felt factories.
6. Plants engaged in the upgrading or destruction of waste oil or other refinery waste products. (a)
7. Liquid gas stock of more than 100 m³ (hydrocarbons).
8. Patent fuel factories (including production of peat litter).
9. Stocks above the ground of more than 10.000 m³ of petroleum or liquid petroleum products.

D. Chemical production etc.

1. Plants engaged in the manufacture of organic or inorganic products or chemicals, and stocks of organic or inorganic basic chemicals. (a)
2. Petrochemical industry. (a)
3. Fertilizers factories and stocks of nitrate fertilizers of more than 500 tons. (a)
4. Pharmaceutical production. (a)
5. Plants engaged in production of colouring matters, additives and processing aids for inter alia the food industry.
6. Pesticide production plants. (a)
7. Soap, detergent and cleaning material factories.
8. Paint and varnish factories.
9. Photographic industry and laboratories developing more than 20.000 spools or producing more than 300.000 paper photos a year.
10. Plants engaged in processing or destruction of chemical waste products, of solvents or detergents, and in destruction of other waste products from the chemical industry (a)
11. Bottling or packing of chemicals and products (cf. D.1-10).
12. Enterprises engaged in pressure diecasting, pressing, extrusion and fibre armouring of plastic goods.
13. Synthetic glue factories.

E. Processing of vegetable raw material.

1. Cellulose, paper and paper board mills. (a)
2. Wood impregnation plants. (a)
3. Rotary, offset and book printing works. (×)
4. Paper and cardboard article factories, and book binderies. (×)
5. Sawmills, production of veneer or fibre plates, and furniture making and wood working factories. Joiner's workshops of more than 200 m² gross floorage.
6. Rubber factories. (a)
7. Textile bleacheries and textile dye-works.
8. Textile factories, spinning mills, knitware factories, clothing industries and ropeworks. (×)
9. Cleaning establishments and commercially operated laundries.
10. Refining and other treatment of vegetable oil.
11. Treatment and preparation of grain, seed or feedstuff, including green fodder drying and straw lyeing. (a)
12. Milling.
13. Wholesale bakeries (including bread bakeries). (×)
14. Breweries, malt houses and mineral water factories.
14. Distilleries and yeast factories.
16. Potato flour and starch factories.

17. Potato boiling plants.
18. Potato product factories.
19. Sugar works. (a)
20. Factories producing canned fruit, fruit juice, canned vegetables, deep-frozen fruit and vegetables, in quantities exceeding 1000 tons/year.
21. Plants engaged in washing and cleaning of vegetables in quantities exceeding 1000 tons/year.
22. Vinegar and mustard factories. (×)
23. Coffee roasting factories and coffee substitute factories.
24. Onion roasting factories. (×)

F. Processing of animal raw material.

1. Slaughterhouses of all kinds and casing-cleaning factories. (a)
2. Meat meal factories (dry-rendering plants) and bone meal, blood meal, feather meal and animal glue factories. (a)
3. Tanneries and fur dressings and storage and treatment of pigs's bristles and curled hair. (a)
4. Tallow and fat melting plants and refining of animal oil or fat.
5. Plants engaged in the manufacture of canned or deep-frozen meat in quantities exceeding 2000 tons/year.
6. Smokehouses, butchers' shops and delicatessen shops producing more than 500 kg of foodstuff a day. (×)
7. Dairies, ice cream, canned milk and milk powder factories, and plants producing cheese or cheese powder. (a)
8. Margarine factories.
9. Plants engaged in the manufacture of shellfish or fish products, including canned or deep-frozen products hereof, in quantities exceeding 2000 tons/year. (a)
10. Plants engaged in drying or grinding of oyster or mussel shells. (a)
11. Feedstuff factories, including production of mink fodder.
12. Leather and shoe factories. (×)

G. Storage, deposit or treatment of other waste products.

1. Plants engaged in storage or deposit of waste, including landfill sites, refuse sites and special depots for sludge or slags, and stations or sites for the reception of oil or chemical waste. (a)
2. Plants engaged in treatment or processing of waste, including transhipping stations, grinding plants, composting plants, incineration plants and scrap depots. (a)
3. Plants engaged in combustion of straw and wood waste, with a stoking effect of more than 120 kW (100.000 kcal/hour).
4. Plants for separation or compression of waste or residual products in quantities exceeding 500 kg/hour.
5. Waste suction plants.

H. Power and heat generation.

1. Power stations with a stoking effect of not less than 30 MW. (a)
2. Oil and gas-fired heating stations with a stoking effect of not less than 5 MW. (a)
3. Heating stations burning fuel other than oil and gas, and with at stoking effect of more than 120 kW (100.000 kcal/hour). (a)
4. Gas turbine power stations. (a)
5. Wind power plants generating more than 100 kW. (a)

I. Plants for motor vehicles and other means of transport.

1. Motor racing tracks, moped racing tracks and motoring school grounds. (a)
2. Airports and airfields. (a)
3. Garages, parking grounds for 3 or more vehicles in connection with contractor or haulage activities, including bus terminals and depots, and life saving stations and the like. (x)
4. Mechanical washing lines, filling stations and repair shops for motor vehicles other than mopeds.

J. Livestock keeping.

1. Fur farms, poultry keeping and pig farms.
2. Veterinary hospitals, clinics and pensions, experimental animal stables and riding schools.
3. Fish pond farms. (a)
4. Commercial dog shops and kennels.

K. Miscellaneous.

1. Crematoria.
2. Shooting ranges, (a)
3. Amusement parks.

(x) Application for a licence pursuant to section 35 of the Environmental Protection Act is not required provided the enterprise is set up in accordance with approved local plans or town plan regulations, according to which the area in question is zoned for industrial purposes. If the quantitative limits laid down for the individual types of enterprises are exceeded as a result of extension or modification, the enterprise as such shall be approved before the extension or modification is effected.

Ministry of the Environment, Denmark
National Agency of Environmental Protection
Translation LK
August 1977

Statutory Order no. 176 of March 29, 1974, on Heavily Polluting Enterprises etc.

Pursuant to Act no. 372 of June 13, 1973, on Environmental Protection, section 43; subsection 2 of section 39; section 46; subsection 2 of section 50; and section 56, and after consultation with local and regional organizations, the following provisions are laid down:

Part 1
General Provisions

Section 1: According to section 35 of the Act, enterprises, plants or fixtures included in the Annex of the Act, cf. the Annex to this Order, shall not be established or commenced without prior approval. Such enterprises, plants or fixtures shall not without approval be extended or modified as regards construction or operation in such a way as to result in increased pollution.

Subsection 2: For the purpose of this Order "enterprises" means the enterprises, plants and fixtures referred to in subsection 1 hereof.

Part 2
Application Area of the Order

Section 2: The provisions of this Order shall be applied by decisions of approval according to section 35 of the Act, of:

1) Enterprises established or commenced later than October 1, 1974; cf. Part 9.

2) Extensions or modifications of buildings or operation of enterprises after October 1, 1974, in cases where such extension or modification results in increased pollution; cf. Part 9.

3) Existing enterprises applying for approval, cf. section 37 of the Act.

Part 3
Authorities which Consider the Approval

Section 3: Application for approval shall be submitted to the local council of the local district in which the enterprise is or is intended to be located.

Section 4: The local council shall consider the application for approval pursuant to section 35 of the Act.

Subsection 2: The regional council shall, however, consider applications for approval of enterprises marked with (a) in the Annex of this Order. In the metropolitan area (Copenhagen and Frederiksberg local districts; Copenhagen, Frederiksberg and Roskilde regional districts) such decision shall be made by the Greater Copenhagen Council.

Subsection 3: The regional council or the Greater Copenhagen Council shall also consider applications for approval in those cases where permits for separate discharge of waste water other than domestic waste water are required under subsection 2 of section 29 of Statutory Order from the Ministry of the Environment no. 174 of March 29, 1974, on hearing of cases concerning discharge of waste water into watercourses, lakes or the sea etc., or in those cases where such approval has previously been granted.

Section 5: Cases of doubt whether an enterprise shall be approved by the local council, or by the regional council or the Greater Copenhagen Council, shall by the authorities in question be submitted to and settled by the National Agency of Environmental Protection.

Section 6: The regional council shall decide in matters of approval of enterprises operated by local authorities. However, in the case of enterprises operated by local or by regional authorities within the metropolitan area, this decision shall be made by the Greater Copenhagen Council.

Subsection 2: The National Agency of Environmental Protection shall decide in matters of approval of enterprises operated by the Greater Copenhagen Council, and of enterprises operated by regional authorities outside the metropolitan area.

Section 7: Permits to discharge waste water shall be granted to the enterprise pursuant to the provisions laid down in Statutory Order from the Ministry of the Environment no. 174 of March 29, 1974, on hearing of cases concerning discharge of waste water into watercourses, lakes or the sea, etc.

Subsection 2: Permits to discharge waste water and the conditions on which it is granted are included in the approval issued under this Order.

Section 8: The local council shall supervise and control the enterprises included in the Annex of this Order.

Subsection 2: The regional council shall supervise and control the enterprises which are operated by local authorities. The Greater Copenhagen Council shall supervise and control the enterprises operated by local or regional authorities within the metropolitan area. The National Agency of Environmental Protection shall supervise and control the enterprises operated by the Greater Copenhagen Council and by a regional authority outside the metropolitan area.

Part 4

Contents of the Application

Section 9: The application for approval shall be in writing and accompanied by the following information, to the extent necessary to enable the approving authority to evaluate the environmental

pollution resulting from the operation of the enterprise: however, the application shall make due allowance for the nature of the activity applied for and of the enterprise in question.

A) Plans of the location of the enterprise.

1) Plan on an adequate scale (for instance 1:4,000) indicating the land register title number, and location in relation to the surroundings, including adjoining or surrounding sites.

2) Overall plan on an adequate scale (for instance 1:500) indicating the location of the total enterprise on the property.

B) Information on the establishment of the enterprise.

3) The expected dates of commencement and completion of building and construction, and of commencement of operation.

C) Information on design and operation of the enterprise.

4) Plan on an adequate scale, indicating the location of production and storage premises, and, if possible, the use of unbuilt areas. Chimneys, waste water run-offs and other emissions (emission: discharge of gaseous, liquid or solid matter) from filters, purification devices, ventilation and suction installations etc., shall be indicated by numbers in the plan.

5) Type and consumption of raw material and processing aids. Information on internal transportation and storing likely to result in pollution.

6) Flow-sheet of the production process of the enterprise, including all emitting installations, cf. point 13),

with numbers in accordance with the plan indicated in point 4.

7) Risky processes, and storing and internal transportation of substances with dangerous properties, cf. point 12.

8) The expected hours of normal daily operation, both of individual heavily polluting installations and machines, and of the enterprise as a whole, and information on saturday, sunday and holiday operation.

9) If the operation of the enterprise is of a temporary nature, information on the expected date of termination.

D) Information on pollution control measures.

10) Description of purification devices, and indication of the substances which pass into the devices, and the degree of purification of the various substances, cf. point 6 and 13.

11) Description of noise reduction measures, both in relation to individual, especially noisy installations and machines and to the enterprise as a whole.

12) Description of measures to avoid interruption of operations or accidents in connection with risky processes and with storing and internal transportation of substances with dangerous properties, cf. point 7.

E) Information on pollution from the enterprise.

13) Composition and quantity of emissions from the installations indicated in the flow-sheet, point 6.

14) Especially noisy installations or machines likely to cause nuisance to the surroundings, cf. point 11.

15) Specification of immission calculations (calculation of the concentration in the surroundings of certain of the substances referred to in point 13.)

16) Indication of the estimated noise level in the surroundings as a result of the operation of the enterprise.

F) Information on waste etc. from the enterprise.

17) Composition and quantity of waste from the enterprise.

18) Waste disposal method and location, including information on waste and residual products which are stored in the enterprise.

Part 5
Contents of the Approval

Section 10: The approval shall state the grounds for approval, including the location of the enterprise on the property, and the measures which the enterprise has informed will be taken to prevent pollution.

Subsection 2: The approval shall state the terms and conditions stipulated for the establishment and operation of the enterprise, including the terms of the anti-pollution measures, of the nature of pollution and of the control measures to be taken by the enterprise.

Subsection 3: The approval shall stipulate the terms relating to the date on which the operations of the enterprise shall be commenced.

Subsection 4: The approval may be temporary, both as regards the approval in general and as regards particular plants, processes, emissions etc.

Part 6
Notification of the result of the hearing

Section 11: Approval or refusal shall be notified in writing to the applicant.

Subsection 2: Notification of the result of the decision shall by the same mail be notified in writing to the Public Health Officer involved, and to other public authorities and private persons who are likely to have an individual and significant interest in the decision. If necessary, notification to the private persons in question may be made by public announcement.

Subsection 3: The decision shall stipulate the appeal authority and the time within which the appeal must be brought.

Section 12: Decisions about granting of building permits, approval or dispensation pursuant to the building legislation may be postponed until decision pursuant to this Order, cf. section 69 of the Act, has been made.

Part 7
Absence of approval etc.

Section 13: In the absence of approval as prescribed in section 35-36 and section 38 of the Act, or in case of violation of the terms of the approval as stated in sections 35-38 of the Act, the authority which might or did issue the approval, may prohibit the continued operation of the enterprise or, if necessary, demand that the enterprise be removed, cf. section 42 of the Act.

Part 8
Complaints

Section 14: Complaints against approval decisions made by the local council, the regional council and the Greater Copenhagen Council may be made to the National Agency of Environmental Protection.

Subsection 2: Complaints against decisions of the National Agency of Environmental Protection may be made to the Environmental Appeal Board

Section 15: Complaints against decisions of the local council, the regional council and the Greater Copenhagen Council may be made by:

1) the party to whom the decision is directed,

2) The Public Health Officer involved, and

3) any party likely to have an individual, significant interest in the outcome of the decision.

Subsection 2: Complaints against the decisions of the local council may be made by the Greater Copenhagen Council, the regional council, the conservation planning committee or the urban development committee. Complaints against decisions of the regional council may be made by the local council. Complaints against the decisions of the Greater Copenhagen Council may be made by the local council or the regional council.

Section 16: Complaints against thedecisions of the National Agency of Environmental Protection may be lodged with the Environmental Appeal Board by:

1) the party to whom the decision is directed,

2) any party likely to have an individual, significant interest in the outcome of the decision, and

3) the Metropolitan Council, the regional council or the local council involved.

Section 17: The complaint shall be lodged with the authority which made the decision and this authority shall transmit the complaint to the National Agency of Environmental Protection together with the material on which the hearing of the case was based.

Subsection 2: Complaints to the Environmental Appeal Board shall be lodged with the Board.

Section 18: The complaint shall be lodged within four weeks after the date on which the decision was notified to the party concerned.

Subsection 2: However, in the capacity of appeal authority, the National Agency of Environmental Protection may within a period of six months from the date of decision accept complaints received after the expiry of the time limit, provided there are special reasons that the limit is exceeded.

Section 19: Where building or construction activities are involved in an approval, it shall not be exploited until expiry of the time limit for lodging of complaints and provided no complaints have been lodged. The authority which made the decision shall without delay notify the party to whom the approval was granted about the lodging of a complaint, cf. subsection 3 of section 72 of the Act.

Part 9
Transitional provisions

Section 20: Application for approval pursuant to section 35 of the Act is not required in cases where approval has already been granted pursuant to the provisions of the public health bye-laws on the establishment or extension etc. of enterprises: cf. section 38 of the Act.

Subsection 2: Complaints against the decisions of a public health committee as referred to in subsection 1 hereof may be made to the National Agency of Environmental Protection within the limit for complaints laid down in the public health bye-law.

Subsection 3: Applications for approval pursuant to the provisions of the public health bye-laws referred to in subsection 1 hereof, which are submitted to the public health committee before October 1, 1974, but which have by such date not been finally decided upon, shall be considered as provided for in section 35 of the Act.

Part 10
Provisions relating to entry into force
Section 21: This Order shall come into force on October 1, 1974.

Ministry of the Environment, March 29, 1974.

Holger Hansen / Niels Borre

Annex of Statutory Order no. 176 of March 29, 1974, on Heavily Polluting Enterprises

LIST OF ENTERPRISES, PLANTS AND FIXTURES TO WHICH CHAPTER 5 OF THE ACT APPLIES:

(annexed to Act no. 372 of June 13, 1973, on Environmental Protection)

A. Production and manufacture of iron, steel and metals.

1. Ironworks, steelworks and steel rolling mills (a)
2. Iron foundries, steel foundries and non-ferrous metal foundries (a)
3. Plants and enterprises engaged in surface treatment of iron, steel or non-ferrous metal work
4. Steelship yards
5. Engine works and machine shops
6. Drop forgeries, tin goods factories, wire spinning mills
7. Boiler shops, container and tube factories
8. Electrotechnical enterprises, including cable factories and accumulator factories[1)]

B. Extraction and manufacture of lime, clay, stone, gravel, coal and similar products.

1. Mining (a)
2. Cement, lime, mortar and tile works (a)
3. Glassworks, glass wood and mineral wool factories (a)
4. Gravel works, stone crushing works, manufacture of road material and calcination of flint (cf. C.4) (a)
5. Cement foundries and concrete mixing plants
6. Enterprises manufacturing porcelain, faience and earthenware (including kaolin sliphouses)[1)]

C. Treatment of mineral oil, mineral oil products, asphalt, natural gas and coal.

1. Mineral oil refineries (a)
2. Enterprises engaged in processing and upgrading of natural gas (a)
3. Gasworks and coking plants
4. Plants engaged in mixing of asphalt and production of bituminous road material (cf. B.4) (a)
5. Roofing felt factories
6. Plants engaged in the upgrading or destruction of waste oil and other refinery waste products (a)
7. Liquid gas stores (more than 12 m^3)
8. Patent fuel factories (including production of peat litter)

D. Chemical production.

1. Production plants and stores of organic and inorganic basic chemicals (a)
2. Petrochemical industry (a)
3. Fertilizer factories and stores of nitrate fertilizers of more than 500 tons (a)
4. Pharmaceutical production (a)
5. Plants engaged in production of colouring matters and additives for the food industry etc.
6. Production of pesticides (a)
7. Soap, detergent and cleaning material factories
8. Paint and vernis factories
9. Photografic industry and developing plants
10. Plants engaged in processing or destruction of chemical waste products, of solvents and detergents, and in destruction or other waste products from the chemical industry (a)
11. Bottling and packing of the above chemicals (cf. D.1 - 10.)
12. Enterprises engaged in pressure diecasting, pressing and extrusion of plastic goods[1)]
13. Synthetic glue factories

E. Processing of vegetable raw material

1. Cellulose, paper and board mills (a)
2. Wood impregnation plants (a)
3. Rotary, offset and book printing works[1)]
4. Paper and cardboard article factories, and book binderies[1)]
5. Sawmills, production of veneer or fiber plates, and furniture making and wood working factories
6. Rubber factories (a)
7. Textile bleacheries and dye-works
8. Textile factories, spinning mills, knitware factories, clothing industries and ropeworks[1)]
9. Cleaning establishments and laundries
10. Refining and other treatment of vegetable oil
11. Treatment and preparation of grain and feedstuff, including lucerne flour and vegetable pills (a)
12. Milling
13. Wholesale bakeries (including bread bakeries)[1)]
14. Breweries, malt houses and mineral-water factories
15. Distilleries and yeast factories
16. Potato flour and starch factories
17. Potato boiling plants
18. Potato product factories
19. Sugar works (a)
20. Canned fruit and vegetable factories
21. Vegetable washing and cleaning plants
22. Vinegar and mustard factories[1)]
23. Coffee roasting factories and coffee substitute factories
24. Onion roasting factories[1)]

F. Processing of animal raw material

1. Slaughterhouses of all kinds and casing-cleaning factories (a)
2. Meat meal factories (dry-rendering plants) and bone meal, blood meal, feather meal and animal gluefactories (a)
3. Tanneries and fur dressings and storage and treatment of pigs' bristles and curled hair (a)

4. Tallow and fat melting plants and refining of animal oil and fat
5. Canned meat factories
6. Smokehouses, and butchers' shops and delicatessen shops producing more than 500 kg foodstuff a day [1)]
7. Dairies and consumer ice, canned milk and milk powder factories (a)
8. Margarine factories
9. Fish meal, fish oil, fish fillet and canned fish factories and shrimp factories (a)
10. Plants engaged in drying and grinding of oyster and mussel shells (a)
11. Feedstuff factories, including production of mink fodder
12. Leather and shoe factories[1)]

For textile enterprises, see E.7 - E.9

G. Storage and treatment of other waste products

1. Refuse sites (including deposit of sludge and slags) and used car dumps and scrap depots (a)
2. Plants engaged in treatment of solid waste, including animal manure and sludge from waste water purification (a)

H. Power and heat generation

1. Power and heating stations generating not less than 25 MW (a)

I. Plants for motor vehicles and other means of transport

1. Motor racing tracks and moped racing tracks (a)
2. Airports and airfields (a)
3. Garages, cab stands and bus stands
4. Motor vehicle washing lines, filling stations and repair shops

J. Livestock keeping

1. Fur farms, poultry keeping and pig farms
2. Veterinary hospitals, clinics and pensions, and experimental animal stables
3. Fish pond farms (a)
4. Commercial dog shops and kennels

K. Miscellaneous

1. Shooting ranges
2. Amusement parks

1) Application for permission pursuant to section 35 of this Act to establish new enterprises is not required provided the enterprise is set up in accordance with approved town plan regulation.

000369

ATTACHMENT III

MERCK & CO., INC.

P.O. BOX 2000
RAHWAY, NEW JERSEY 07065-0900

(201) 594-4000

July 24, 1990

Mr. Larry E. Deetz, Ph.D.
Research Nutritionist
Hoechst-Roussel Agri-Vet Company
Route 202-206
P.O. Box 2500
Somerville, New Jersey 08876-1258

Dear Mr. Deetz:

As per your request, a copy of the environmental assessment (EA) of STENOROL blending and packaging in MSD Agvet in St. Louis, Missouri is attached. If you have any questions, please contact me at (201) 750-7367.

Sincerely,

Susan H. VanOcker

Susan H. VanOcker
Corporate Environmental Resources

/ra
Attachment
0336f-1

APPENDIX F

Supplement to the Environmental Assessment

4. Description of the Proposed Action

This supplement is to address STENOROL process blending modifications at Merck's St. Louis facility.

Description of the St. Louis, Missouri, Plant of Merck & Co., Inc.

Location

The St. Louis plant is located in the City of St. Louis. The plant is located on 18 acres near the Mississippi River. Population of the City of St. Louis is approximately 407,000.

Weather/Air Resources

Annual rainfall is 36.7 inches. Mean July temperature is 26.3°C (79.3°F). Mean January temperature is 0°C (31.7°F). Prevailing wind is south at 9.5 mile per hour.

The Missouri State Regulations prescribe emission standards for hazardous pollutants. Other significant air pollution-generating industries are located in the vicinity.

Water Resources

All water used for consumption, process and sanitary equipment is obtained from the City of St. Louis Water Division.

All stormwater and site runoff are discharged into the storm water sewer. All sanitary and wastewater discharged to the municipal sewer is treated in the Metropolitan St. Louis Sewer District Wastewater Treatment Plant. The treated wastewater is discharged to the Mississippi River.

Land Resources

The soil is composed of layers of rock and clay.

6. Introduction of Substances Into the Environment

a. Substances Expected to be Emitted
STENOROL blending - St. Louis, Missouri

The primary modes of introduction of chemical substances into the environment as a result of STENOROL blending include air emissions, liquid wastes and solid wastes containing residuals.

Air Emissions

Particulate emissions to the atmosphere result from physical operations during storage, materials handling, blending and packaging of STENOROL. The blending operation includes mixing, milling and screening of calcium Carbonate Q325, mineral oil, Halofuginone, calcium silicate syn amorphos and Microtracer FS orange. Packaging operations include filling 50 lb. bags with product. The materials listed below are used in the blending operation.

Substance	CAS Registry Number
Calcium Carbonate Q325	13137-65-3
Mineral Oil	8012-95-1
Halofuginone	64924-67-0
Calcium Silicate Syn Amorphos	1344-95-2
Microtracer FS Orange	--

Liquid Emissions

The major liquid waste streams from the blending of STENOROL will comprise of residue remaining in the process equipment and wash waters generated from process equipment cleaning for production changeovers. Water that is used to washout equipment is discharged to the Metropolitan St. Louis Sewer District. The liquid waste may contain any of the ingredients listed above in the air emissions section.

Solid Emissions

There is no hazardous solid waste generated from the formulation of STENOROL. Solid waste will be generated by the blending of STENOROL through: 1) used packaging components for ingredients such as paper bags and fiber drums; 2) floor sweepings; 3) returned goods; 4) used employee protective equipment, e.g., dust respirators, protective suits and gloves; and 5) bag filters from dust collectors.

6b. *Control Procedures for the Expected Emissions and Citation of Applicable Emission Requirements*

St. Louis, Missouri

MSD AGVET at St. Louis operates within the Environmental Pollution Act. Emissions at the St. Louis facility are controlled in the following ways:

Air Emission Controls

Dust collectors exist on all processing equipment and silos. The dust control system consists of exhaust hoods and a series of filter bags which removes pollutants like carrier materials and premix materials with efficiencies of 92 to greater than 99%. All dust filter installations are under control by a preventative maintenance schedule.

Liquid Emission Controls

Any liquid wastes which result from the blending steps or equipment cleaning operations are sewered to the Metropolitan St. Louis Sewer District following the City of St. Louis Ordinance #4786. Discharges are monitored by the Authority through periodic sampling and analysis.

Solid Emission Controls

Non-hazardous solid wastes are collected in fiber drums and 1) sent to an approved landfill by a contract hauler; or 2) sent to an approved, permitted offsite incinerator by a contract hauler. Trash is either burned on site in an incinerator following the City of St. Louis permit no. 70; or sent to an approved landfill by a contract hauler.

Occupational Exposure Controls

Material Safety Data Sheets (MSDS) are available onsite for all chemicals required by the Occupational Safety and Health Act of 1971 and the Hazards Communication Act of 1985. To minimize product exposure, workers wear paper (e.g. Tyvek) suits, gloves and dust respirators and attend training courses.

The relevant citations and statements of compliance with these citations are given below:

Air Citations:

Emissions to the atmosphere are subject to and in compliance with the Missouri Code of State Regulations, Title 10, Division 10 and St. Louis City Ordinances 50163 and 59270.

Liquid Citations:

The St. Louis plant discharges its wastes to the St. Louis Sewer District. This constitutes a service connection governed by Ordinance #4786 effluent guidelines and is exempt from the Missouri state permitting regulations.

Solids Citation

Solid wastes resulting from the production process are transported to an approved permitted incinerator or to a local landfill by a licensed disposal company according to 10 CSR 80 Missouri Solid Waste Rules and Regulations. An onsite incinerator is used for the disposal of office paper and other refuse according to St. Louis permit No. 70.

Occupation Citations

The process operation is regulated by and in compliance with the Occupational Safety and Health Act (OSHA) of 1971 and the Hazards Communication Act of 1985.

6c. *Effect of Amendment Approval on Compliance with Current Emission Requirements*

The blending of STENOROL at MSD Agvet in St. Louis, Missouri does not affect the facility's ability to comply with existing regulations.